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ORIGINAL LECTURES.

A NEW METHOD OF MAKING A HYDROSTATIC TEST OF THE MITRAL AND TRICUSPID VALVES.

Abstract of a Lecture delivered at the Pennsylvania Hospital, October 15, 1884.

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GENTLEMEN: To-day I wish to direct your attention to a simple method I have devised for demonstrating the action of the auriculo-ventricular valves of the heart. The study of these valves, the mitral and tricuspid, has thus far been in some respects unsatisfactory. In the past I have often gone away from post-mortem examinations feeling that our understanding of their action, and our methods of ascertaining whether they were in a physiological or pathological condition were not what they ought to be. Often, if there had been a difference of opinion concerning the nature of the signs observed during life, the various physicians present at the autopsy would disagree with regard to the conditions seen, each one maintaining that the post-mortem appearances tallied exactly with what he had maintained to be the condition during life. Even concerning so apparently simple a matter as the question of the existence or non-existence of regurgitation, there would be differences of opinion.

Feeling how unsatisfactory and unscientific this condition of affairs is, I have long wondered how it could be done away with. I have thought that if some easily applicable hydrostatic test could be discovered, a long step in the right direction would be made. There is seldom any disagreement as to the post-mortem conditions of the aortic valves, for it is easy to see if there is any obstruction, and equally easy to test whether or not there was regurgitation. This may be done by filling the aorta with water and noticing whether or not the valve leaks. This autumn it struck me that if I had a glass tube of about the size of the aorta made and attached by a rubber hose to the water spigot, I might have an instrument which would serve my purpose. Instead of opening the ventricles, as is usually done at post-mortem examinations, I lay well open the auricles from above so as fully to expose the superior surface of the auriculo-ventricular openings. The heart is then washed out to free it from all clots of blood by passing a stream of water through from the auricles and out by the pulmonary artery and aorta, and all clots are carefully detached and removed. The tube is then introduced into the aorta and pushed in until the end is just beyond the semilunar valves. If the water is now turned on, the beautiful mechanism of the mitral valve may be observed. As the ventricle fills, the two cusps of the valve float upward and their edges approach each other more and more closely until at last the opening is entirely shut, and you notice that when the valves are healthy and the heart not enlarged, no water flows backward, thus showing quite satisfactorily, to my mind, that the mitral valve at least is, when healthy, entirely water-tight.

All the experiments I have made lead me to believe that if there is any leakage the condition is pathological. This experiment does not, of course, reproduce by any means the conditions as they exist during life, for the element of muscular contraction is wanting, the heart being completely relaxed. During life, however, the mitral cusps can only begin to approach each other after the onward flow from the auricle has ceased and the current has begun to be in the other direction, and this can only take place after muscular action has begun and the size of the ventricular cavity is being lessened. I cannot conceive, however, but that my hydrostatic test is a more severe one than the heart is called upon to bear during life, for when the muscular structure of the heart contracts, the walls are drawn in upon themselves toward certain fixed centres and their tonicity and firmness are increased. What I would say is, that it appears to me that any mitral or tricuspid valve which is perfectly tight when subjected to the hydrostatic test in the relaxed condition, which we find in the post-mortem room, was certainly tight during life, when it had the advantage of the tonicity given by muscular contraction. It might be said that a valve which showed a leak when subjected to this test would not have leaked if the heart muscle had been contracted. I do not, however, think this is the case, for the competency or incompetency of the valves seems to depend upon several things: first, whether the valve-flaps are large enough and have sufficient freedom of motion to be able to fill up the opening; and, second, whether or not the edges fit into each other sufficiently perfectly to prevent all leakage. If the heart is enlarged, and its openings dilated so that the valve-flaps have become relatively too small, then there is leakage, or if the chordæ tendineæ have been shortened or distorted by inflammation, so that they are too short to allow the edges of the flaps to come properly together, then there is leakage. Again, if the flaps are thickened or have any unnatural irregularities upon them, so that their edges cannot fit perfectly the one upon the other, the valve is not tight.

This leads me to direct your attention to the different effects produced, when the valves are subjected to varying amounts of pressure. If a very weak stream of water is turned on, it has not sufficient force to close the opening and the water continues to flow backwards, this goes on until the pressure is increased to the necessary point by turning on more water, when at last the cusps come suddenly together, and the regurgitation instantly ceases. If the pressure is still further increased, the heart becomes overdistended and the edges of the valve are pulled slightly apart, and leakage again takes place. This should teach us a valuable lesson

as to what may take place during life, and why, when we listen to the same heart under seeming exactly similar circumstances, at one time we hear a distinct murmur which we can satisfactorily time and localize and at the very next moment perhaps the heart acts without the production of murmur. This must depend largely upon the varying force of the muscular contraction. I listened recently to the heart of a woman which was acting irregularly and in whom there is reason to suspect the existence of some structural change of the heart muscle. When the heart beat for a time without an intermission, there was no murmur heard; but each time a beat was dropped, when the more forcible contraction came, which will follow an intermission, the heart trying to catch up what it had lost, there was a distinct systolic murmur produced: showing to my satisfaction at least that even where the causes of regurgitation are present, no murmur is produced if the heart muscle acts very feebly. This is a fact which is very commonly accepted.

It struck me in testing valves by this method that in order to make the application more perfect, two tubes should be used so as to fill both ventricles at the same time, as otherwise the ventricle being tested would be unduly stretched, enlarging at the expense of the other one and thus the opening would become too large and the valve leak when it would not have done so if both ventricles had been filled at the same time. This would be much more likely to happen and might have a much more important bearing in the case of the tricuspid valve and right ventricle than of the mitral and left. In the natural condition of things, the left ventricle is a cavity of which both the anterior and posterior walls are convex when looked at from the exterior. The right ventricle, however, is like a flat cushion and is bent over the anterior surface of the left. When looked at externally, its anterior wall is convex, but its posterior wall is concave. The ventricular septum of the heart forms the anterior wall of the left and the posterior wall of the right ventricle, and, as already said, it is, in the natural condition of things, bowed forwards. In making a post-mortem hydrostatic test of the tricuspid valve, if the left ventricle is empty the posterior wall of the right ventricle is driven by the pressure of water backwards and made to encroach upon the cavity of the left ventricle, and this stretches the tricuspid opening to such a degree that the valve fails to be "water-tight." In this fact, it seems to me, we may have found another proof of the truth of what many observers have taught in the past, that the tricuspid is the "safety-valve" of the heart. If the tricuspid opening is stretched and the valve leaks whenever the blood pressure becomes much intensified in the right ventricle and lessened in the left, as so often happens in cases of bronchitis and other diseases, causing obstruction to the free passage of blood through the lungs—and this happens because the ventricular septum is bowed backwards into the left ventricle—we have almost proof positive that tricuspid regurgitation is a very common occurrence without pathological change in the heart, and that it is actually the "safety-valve" of the heart, because it can so easily allow of the reflux of blood upon the systemic veins and thus relieve increased blood pressure within the right heart and pulmonary circuit.

It would be easy in making this hydrostatic test to have the pressure the same as that which exists in the heart in the physiological condition by using a tube of a fixed diameter and a column of water of a certain height. Whether this test is to prove of much practical value or not time only can show, but it is certainly useful thus far that it offers a method of showing in such a way that the eye can easily appreciate the mode of action of the mitral and tricuspid valves, and that is a thing which has been heretofore undemonstrable.

ORIGINAL ARTICLES.

THE PATHOLOGY OF BRONCHO-PNEUMONIA.[1]

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I SHALL offer for your consideration, this evening, some observations on the subject of broncho-pneumonia. I venture to do this for the reason that I believe that this particular lesion suffers from the effects of tradition, from having been called catarrhal pneumonia, and from its relations to pulmonary phthisis. It is also doubtful whether the profession appreciate what a common lesion it is.

I do not mean that the real lesions and symptoms of the disease have not been described. They have been described by different observers; but their descriptions have been, for the most part, fragmentary, and have failed to give a picture of the disease.

The current notions concerning the disease have remained somewhat obscure and indefinite. The prevailing ideas concerning broncho-pneumonia may be stated as follows:

That the terms broncho-pneumonia, lobular pneumonia, catarrhal pneumonia, and capillary bronchitis may all be used to designate the same lesion. Although it is customary to use the words broncho-pneumonia and lobular pneumonia when the disease occurs in children; capillary bronchitis when it occurs in adults; and catarrhal pneumonia when it is believed to be a form of phthisis.

That the inflammation begins in the bronchi, extends to the small and capillary tubes, and then to the groups of air vesicles which belong to these bronchi, and that for this reason the hepatization assumes a lobular form.

That obstruction of the bronchi with inflammatory products frequently produces areas of atelectasis.

That the catarrh may become chronic, the products of inflammation in the air vesicles undergo cheesy degeneration, interstitial changes be developed in the framework of the lung and so a form of pulmonary phthisis be produced.

This, I think, is a fair enough example of the ordinary accounts of broncho-pneumonia—accounts which fail to bring out the essential features of the disease.

Let us, then, turn to the conditions themselves—

[1] Read before the Pathological Society of Philadelphia, October 23, 1884.

to the clinical symptoms and the lesions of broncho-pneumonia as we all can see them for ourselves.

To approach the subject properly, we must consider the symptoms and lesions of acute bronchitis, as well as those of broncho-pneumonia.

First, then, of *acute catarrhal bronchitis*. This is a disease of very common occurrence, especially in children, but one which seldom proves fatal. Our knowledge of its lesions is derived from exceptionally severe cases, from cases which are complicated by other diseases, and from the symptoms which we observe during life.

The inflammation involves regularly the trachea and the larger bronchi, less frequently the smaller bronchi also. As a rule, the bronchi in both lungs are equally affected.

The first change seems to consist in a congestion and swelling of the mucous membrane of the bronchi with an arrest of the functions of their mucous glands. This is attended with pain over the chest, a feeling of oppression, rapid or asthmatic breathing, and a dry cough.

Fever and prostration are present in a degree corresponding to the extent and severity of the inflammation and to the age of the patient.

After this the mucous glands resume their functions with increased activity, the congestion and swelling diminish, there is a more rapid desquamation of the superficial epithelial cells, an increased growth of the deeper epithelial cells, and a moderate emigration of white blood-cells. Sometimes the red blood-cells also escape from the vessels.

The patient now has less pain and oppression, the cough is accompanied with an expectoration of mucus, mixed with epithelium, pus, and sometimes blood. After death the only lesions visible are the increased quantity of mucus, the growth of new epithelium, a few pus-cells infiltrating the stroma of the mucous membrane, and sometimes a general congestion. If the smaller bronchi are involved, they contain pus cells.

In a moderate number of cases, especially in very young children, certain accessory lesions are added. There may be a general congestion of the parenchyma of the lung, and even a filling of some of the air vesicles with inflammatory products. Still further, the filling of the small bronchi may lead to the collapse of the groups of air vesicles to which they lead, and thus are produced areas of atelectasis, which may be further changed by inflammatory processes.

In acute catarrhal bronchitis, then, the inflammation involves regularly only the mucous membrane of the bronchi; and in this mucous membrane the only changes are: congestion, swelling, changes in the epithelial cells, and in the functions of the mucous glands.

As complicating conditions, we may find atelectasis, congestion of the parenchyma, and areas of diffuse pneumonia.

Now let us consider the lesions and symptoms of broncho-pneumonia.

This disease is of common occurrence in children as an idiopathic inflammation, and as a complication of measles, whooping cough, scarlet fever, and diphtheria. In adults it occurs less frequently, but in them also it may be idiopathic, may complicate the infectious diseases, and may follow injuries of the brain and spinal cord. Constitutional syphilis also may give rise to broncho-pneumonia, and in pulmonary phthisis this same inflammation constitutes an important part of the lesions.

In children, while the inflammation always presents the same essential characters, yet there is considerable diversity, both in the symptoms and in the lesions, in different cases. Thus, in infants a few weeks old, often the only symptoms are rapid breathing, a febrile movement, prostration, and death.

In older children there are well-marked constitutional disturbances—fever, prostration, and cerebral symptoms; in some cases the cerebral symptoms being excessively developed. The breathing is rapid. There may be cough. The physical signs are those of bronchitis alone, or of bronchitis with consolidation of the lung. If there is consolidation, it is developed slowly, and disappears slowly. Not infrequently successive portions of the lung become consolidated. The disease terminates in the death of the patient, in recovery, or it assumes a chronic character. This disposition of the broncho-pneumonia to become chronic, is one of its characteristic features, a feature in which it differs from acute bronchitis and lobar pneumonia. The cases vary, however, as to the degree in which the disposition is carried out.

In some children the disease after running its regular course of one or two weeks subsides, the constitutional symptoms are less marked, the child seems better in every way. But yet the physical signs of consolidation continue, there is still a slight rise of temperature, and convalescence does not fairly begin. In this condition the child may remain for a number of weeks and then get entirely well, except that the percussion note and the breathing remain somewhat changed.

In many such cases as these the recovery is permanent and the child has no further trouble. But in other cases, after the lapse of several months, the child is attacked with acute general tuberculosis. Thus it is not uncommon in children's asylums for an epidemic of measles complicated with broncho-pneumonia to be followed after the lapse of a year by an epidemic of acute tuberculosis.

In other children the course of the disease is more protracted. The physical signs of consolidation continue, there is a febrile movement, the child has no appetite, it gradually emaciates and dies at the end of several months. These cases resemble pulmonary phthisis in their symptoms, but they are really only examples of a broncho-pneumonia which has become chronic.

In still other children the physical signs and the constitutional disturbances continue, but the child does not succumb to the disease. It continues to live with the evidences of a chronic bronchitis which go on year after year. So the child may grow up to adult life, sometimes better, sometimes worse, never entirely well. Cough, expectoration, dyspnœa, oc-

casional fever, harass the patient at intervals. The lung becomes more and more solid, the bronchi more dilated, the pleura thicker, and the affected side of the chest more retracted.

In the cases of acute broncho-pneumonia which die within from two days to three weeks, there is some variety in *the post-mortem appearances.*

The lungs may be large and well aërated, but on section the cut ends of the medium sized and smaller bronchi are unusually prominent and thick, and around them are little zones of hepatization of red, or gray, or white color. This appearance of the lung may be further modified by a cylindrical dilatation of the thickened bronchi.

In other cases the lungs are denser and more congested, and a larger or smaller portion of them is consolidated. The consolidation portions are unaërated, dense, and smooth, of red color, or pinkish gray, or dark red. Or the color may be mottled—small, rounded gray or whitish areas surrounded by red hepatization.

The distribution and extent of the consolidation also vary. The hepatized areas may be small, encircle the bronchi, and situated at some distance from each other. Or they may in some one lobe or part of a lobe be close together, and between them is a more diffuse hepatization, so that this part of the lung may be completely solid.

The appearance of the consolidated lung may be further changed by a cylindrical dilatation of the bronchi.

In still other cases the consolidated portions of lung are of some size and of somewhat regular shape, as if they were portions of lung corresponding to bronchi. These portions are dense, unaërated, of dark red color, and somewhat shrunken.

If the inflammation has become chronic, then over one lobe or part of a lobe the pleura is thickened, bands of fibrous tissue run into the substance of the lung, and the lung tissue is dense, hard, and unaërated.

When we examine these lungs more minutely we notice first some peculiarities which belong to them because they are the lungs of children and not of adults. The bronchi and the connective tissue framework of the lungs occupy a larger relative space than they do in the lungs of adults; and in any inflammation of the lungs they are apt to take a more prominent share. The air vesicles are small and products of inflammation which have been formed within them are absorbed slowly and with difficulty. The walls of the vesicles are lined with a nearly continuous layer of epithelial cells. When the vesicles are inflamed there is a greater production of new epithelium and a less of fibrin than in adult lungs. The small size of the air vesicles render a simple congestion and dilatation of the capillary vessels within their walls a more serious condition than it is in adults. The bronchial glands are more regularly and intensely inflamed. These peculiarities of the child's lung seem to account for its liability to certain forms of inflammation.

The same exciting causes apparently produce in a child under five years of age, broncho-pneumonia; in a person between the age of five and fifteen, broncho-pneumonia, or lobar pneumonia; in an adult, lobar pneumonia.

Now let us consider more in detail the lesions of broncho-pneumonia in children.

The trachea and large bronchi are congested and coated with mucus as in acute bronchitis; but in the smaller, and to a less extent in the capillary bronchi, the changes are of a different character. In these small bronchi the entire thickness of their walls is infiltrated with cells—partly new connective tissue cells, partly pus cells. This change may affect the small bronchi equally in all parts of the lungs, or it may be confined to those situated in one lobe or part of a lobe.

Around every bronchus, of which the walls are infiltrated with cells in this way, is a zone, either of intense congestion or of pneumonia, the inflammation extending directly outwards from the bronchus to the surrounding vesicles.

In the zones of peri-bronchitic pneumonia, the walls of the air vesicles are infiltrated with cells in the same way as are those of the bronchi. The cavities of the vesicles are filled with pus and epithelium, or with an organized tissue composed of a basement substance and cells.

These constitute the essential features of the lesion—a bronchitis which involves the *walls* of the bronchi, and a pneumonia which involves the vesicles *surrounding* the bronchi, and which produces changes in the *walls* of the vesicles as well as in their cavities, while the inflammatory products within the cavities of the vesicles are not only pus and fibrin, but also organized tissue.

To these essential lesions are often added other accessory changes. The bronchi, of which the walls are infiltrated with cells, may be dilated. Between the zones of peri-bronchitic pneumonia the lung is congested, and there may be areas of diffuse red hepatization, which do not, however, correspond to bronchi. There is often a layer of fibrin on the pulmonary pleura. There may be areas of atelectasis corresponding to obstructed bronchi.

The bronchial glands are swollen, and the seat either of simple or of tubercular inflammation.

When the broncho-pneumonia passes into the chronic condition, the inflammation usually persists only in part of a lobe, or a single lobe, while the rest of the lungs return to a normal condition. In that portion of the lung in which the inflammation persists, we find the small bronchi with their thickened walls and their zones of peri-bronchitic pneumonia. The number of bronchi involved may be moderate, and then a section of the lung will look as if it were studded with fibrous nodules. Or most of the bronchi may be involved, the zones of peri-bronchitic pneumonia are close together and the entire lung tissue is dense and solid. In either case the bronchi may be dilated and the pulmonary pleura thickened. As the inflammation goes on, its interstitial character becomes more and more marked until the affected portion of lung becomes converted into a mass of fibrous tissue, in which the bronchi still remain, while the air vesicles are oblit-

erated. The bloodvessels, however, are not obliterated, for the most part, so that the lung does not become necrotic or degenerated. Still occasionally areas of cheesy degeneration exist.

These are the characteristic features, then, of the broncho-pneumonia of children.

In adults broncho-pneumonia occurs in one of four forms: As an idiopathic inflammation of acute and severe type. As a subacute inflammation. As a complication of the infectious diseases and of lesions of the brain and spinal cord. As one of the lesions of phthisis.

1. The acute, idiopathic broncho-pneumonia of adults.

The invasion of this disease is acute and severe.

The patients have rigors; pains in the head, back, and chest; vomiting and marked prostration. The temperature runs between 102 and 105; the pulse is rapid; the breathing is rapid and unsatisfactory. There is cough, at first dry, later accompanied by profuse muco-purulent and bloody expectoration. There is venous congestion of the skin, albumen in the urine, and cerebral symptoms. When we examine the chest we find the percussion note normal, or exaggerated, or dull. There are crepitant, subcrepitant, and coarse râles with sibilant and sonorous breathing.

The cases usually terminate fatally in about seven days. After death we find both lungs large, heavy, and congested. There is fibrin on the pulmonary pleura. The trachea and large bronchi are congested and coated with mucus. The smaller bronchi contain pus, their walls are thickened and infiltrated with cells, and around them are zones of air vesicles with their bloodvessels gorged with blood, and in their cavities epithelium pus and fibrin.

2. *The subacute broncho-pneumonia of adults.* This is a rare disease. It has a clinical history much resembling that of acute phthisis.

The patients are attacked wiih prostration, fever, cough, and muco-purulent expectoration, dyspnœa, pain in the chest, coarse râles all over the chest, with dulness over the consolidated portion of the lung. These symptoms continue, the patients lose flesh and strength, and die at the end of several weeks.

After death we find fibrin on the pulmonary pleura. The larger bronchi are congested and coated with mucus. There is an irregular, diffuse red hepatization mottled with small white nodules from the size of a pin's head to that of a pea. In the diffuse red hepatization the air vesicles are filled with pus, epithelium, and fibrin. The white nodules correspond to sections of bronchi with zones of peribronchitic pneumonia. These bronchi are of small size, they contain pus, their walls are thickened and infiltrated with cells, and they may be dilated.

In the peri-bronchitic zones of pneumonia the walls of the vesicles are thickened and infiltrated with cells, but the bloodvessels remain pervious and can be injected. The cavities of the vesicles are filled not with pus and fibrin alone, but also with a basement substance of homogeneous or finely fibrillated character in which are embedded polygonal, round, and fusiform cells.

3. *The complicating broncho-pneumonia of adults.* It is not uncommon for some of the infectious diseases, and some of the lesions of the brain and spinal cord to be accompanied by the development of this form of inflammation of the lung.

In typhoid fever we sometimes find a broncho-pneumonia exactly resembling the same lesion as it ordinarily occurs in children.

In pyæmia the inflammation is of the same kind, but is apt to be less extensive, involving only part of one or both lungs.

With lesions of the brain and spinal cord the changes are the same as with pyæmia.

4. *With phthisis*, both acute and chronic, broncho-pneumonia often forms an important part of the morbid changes in the lungs, but yet it is never the primary or the only lesion. It is only one of a number of pathological changes which go to make up the complex whole of pulmonary phthisis.

From what has been said, then, I would draw the following conclusions:

There is a form of inflammation of the lung which may properly be called broncho-pneumonia.

In children it is the most frequent form of pneumonia, in adults it is less common.

It differs from bronchitis and from lobar pneumonia in that the inflammation effects changes in the *walls* of the bronchi and of the air vesicles, and this peculiar interstitial character of the process exists from the very outset.

The inflammation extends from the bronchi, not to the group of air vesicles into which they lead, but directly outwards to the vesicles which surround the inflamed bronchi, and in these vesicles the walls are changed.

The interstitial character of the inflammation is its most important feature. It accounts for the severity of the symptoms, the frequent long continuance of the consolidation, the dilatation of the bronchi, and for the tendency of the broncho-pneumonia to assume a chronic character.

The complicating tubercular inflammation of the bronchial glands may give rise later to general tuberculosis.

Broncho-pneumonia is not a form of phthisis; it is doubtful if it is ever directly followed by phthisis; but it constitutes a part, and often an important one, of the lesions which constitute phthisis.

I have endeavored to describe in a somewhat incomplete way the characteristic symptoms and lesions of an ordinary disease. I am well aware that I have described conditions which are familiar, and that nothing which I have said has not been said before.

But the very common occurrence of this form of inflammation of the lung renders it all the more important. The varying character of the lesions has confused their essential and their accidental characters, and I think it is worthy of consideration whether the views, which I have advanced concerning the pathology of the disease, are not the true ones, namely, that the inflammation is essentially and from the outset an interstitial one, more or less complicated by other conditions.

LARGE DOSES OF QUININE IN THE TREATMENT OF TYPHOID FEVER.

BY GEORGE S. HULL, M.D.,
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IN reading recent articles in the journals upon the treatment of typhoid fever, I notice that, while most of the writers speak of and recommend the use of quinine in large doses—following closely the German authorities—they either neglect giving their own experience in the matter or frankly state that they have not addicted themselves to the heroic use of this drug. The main object, therefore, of this paper is to report, as concisely as possible, the results obtained and bits of experience acquired in the treatment of a number of cases of typhoid, in which the febrile movement was marked, the temperature reaching 103° and 105° early. I am aware that my number of cases—twenty-nine—is comparatively small, but it represents only the severe ones taken from the whole number that has fallen to my lot in private practice since beginning to use the quinine treatment—four years ago.

The mild cases received but little treatment beyond carefully regulated diet and perfect rest, no mortality resulting. Of the twenty-nine cases, two proved fatal. The one was a boy of seventeen years, who had worked at hard labor till almost exhausted with the diarrhœa. When first seen he was about in the middle of the second week of the disease, with an evening temperature of 105°. The intestinal trouble proved intractable, and progressed to a fatal issue.[1] The other, a girl of nineteen years, was being treated for secondary syphilis at the time she was taken with the fever. She went through a very severe attack and was convalescing when pneumonia set in. As she was recovering from the pneumonia, syphilitic ulceration of the larynx supervened, and proved fatal, dyspnœa being the main exhausting cause.

Did space permit, an exhibition of the temperature sheets of all the cases would be the best method of showing the almost marvellous results frequently obtained from the quinine treatment. It must suffice, however, to state briefly the main features of the cases and what action the quinine had upon the temperature, etc.

In none of these cases was malaria a factor—the first large dose of quinine generally shows whether or not there be a malarial element in the case.

In many of the cases the temperature had reached 103° or 105° before being called to attend; and in all of them it rose above 103½° before I felt the necessity of resorting to such active treatment. The doses ranged from 18 grains up to 45 grains—no case demanding more than the latter amount to obtain the desired result. In but one case was it necessary to use it in the form of suppositories, and in no instance was the hypodermatic method required. Such large doses of the crude drug, or dissolved in acids and flavored, are apt to be rejected by the stomach, while the same amount given in pills (12 to 20), in a short space of time, is apt to alarm the patient and household generally; hence it becomes necessary to prepare it in the most agreeable and compact form, and one the least likely to nauseate or to irritate the intestinal mucous membrane. The mixture used the most frequently, and which caused the least complaint, was the following:

℞.—Quiniæ sulphatis, . . .	gr. xv–xlv.
Pulv. glycyr. ext., . . .	ʒi–ʒij.
Syr. simplicis, . . .	ʒss.
Aq., ...	q. s. ad ʒj.—M.

This was given at one dose; or in three doses, fifteen minutes apart, especially when the larger doses were used. When patients tired of this, ext. glycyr. rad. fld. was substituted; it alters the color and somewhat the taste, still being almost equal to the former in disguising the bitterness.[1] When these were refused, it was rubbed into a mass with glycerine (hydrochloric acid being added to increase solubility, and especially to reduce the bulk) and enclosed in gelatine capsules. In the one case in which it was given in the shape of suppositories (ʒj with gr. ij pulv. opii, in two suppositories), it reduced the temperature satisfactorily, though not so promptly as when administered by the mouth. The hypodermatic method, being yet in bad repute as regards quinine, was not resorted to.

Morphia, in small doses, was frequently added when there was much restlessness or insomnia; it also seemed to heighten the action of the quinia, as has been claimed of this combination.

Where the stomach was very irritable, the following, with rare exception, was retained:

℞.—Quiniæ sulphatis, . . .	gr. xv–xlv.
Pulv. glycr. ext., . . .	ʒj–ʒij.
Bismuthi subnit., . . .	ʒj–ʒj.
Liq. morph. sulphatis, . .	ʒss–ʒjss.
Aq., ...	q. s. ad ʒj.—M.

Sig.—At one dose.

Much importance seemed to attach to the time of administration; a dose of 18 to 24 grains early in the morning, when the temperature was 103°, generally reduced it two or three degrees, though in some cases it merely kept it from rising, which condition held for thirty-six to forty-eight hours, when the dose would have to be repeated and increased. 30 to 40 grains given at the same time very frequently reduced

[1] This boy was one of four very severe cases occurring in the family of a sexton, who resided within the cemetery limit. There were seven cases in all, embracing the whole family, three being of a milder type and not requiring the quinine treatment. It is interesting to note the position of burying-ground proper, of house, spring, etc. On the east the cemetery is bordered by a creek; on the west by a country road. From the creek the ground rises rather abruptly (about 15 feet), and then gently rises to about midway between creek and road; from this point it slopes toward road and to south. The ground is slaty on the surface and clayey beneath. About 70 feet from creek and 400 feet from top of slope stands the house, and midway between it and creek is a deep spring from which the family carried their water. The main burying-ground is on the western slope, but lately, on account of overcrowding, they have been interring on the eastern slope, toward the house. There seemed to be no doubt that the spring was infected and caused the disease, as not long before this endemic in the sexton's family there were frequent and very copious rains, penetrating deeply. One of the sons, who lived a distance from the house, but came home in the evenings to assist in the work, was one of the worst cases.

[1] Lately I have been using the *compound fl. ext. of liquorice* (Wyeth's), which is even more satisfactory.

it to normal, and in some cases below, from which it rose slowly, necessitating a repetition, with generally an increase in the dose, in forty-eight hours. In order to realize the maximum effect from a minimum dose, it is well to give it at night—to kick, as it were, the temperature while it is falling—and in most instances, where the evening temperature was above 104°, this method was pursued. In one case an evening temperature of 106½°, on about the twelfth day (the patient not having had quinine treatment previous to my seeing him), was reduced by a 40 grain dose to 98° the next morning; in forty-eight hours it stood at 105°, and the dose was repeated with a similar result; afterwards smaller doses met the requirements. It has seemed to me, in more than one instance, that the nearer the crisis was at hand, the less quinia was needed to get a corresponding fall in temperature; that large doses at this time were apt to act almost violently.

So certainly did the desired effect follow a large dose of quinia, that, from my own slight experience, even were there no weightier, I would feel it not making too bold an assertion to say that failure to reduce the temperature in typhoid by this drug when given in the proper combination, and at the proper time, is a confession of *timidity* in its use. Sometimes it is reserved till all other means have proved futile and the patient is exhausted, when it is given as a forlorn hope—even then it will occasionally "work a miracle" and save the patient. Two of the cases seem to have demonstrated this fact. One, a married lady, thirty-five years of age, was near the end of the third week when first seen. She was emaciated in the extreme, with low, muttering delirium, from which she could not be aroused, dry and crusted tongue, bowels passing unconsciously and frequently, temperature in the morning 104°, pulse 130, with first sound of heart almost inaudible—in fact, so exhausted that death seemed a near certainty. She had been treated mainly with small, repeated doses of quinia and mild stimulants. Carbonate of ammonia and whiskey were given her as freely as possible, and, when she began to respond, a 20 grain dose of quinia administered. By night (seven hours later) her temperature was 102°; in the morning 100°, with patient partly conscious. It remained at this point till near evening, when it began rising; she was then given 15 grains, and by morning it had fallen below normal. Convalescence followed.

The other patient, a girl of sixteen years, who came under my care at the beginning of the disease, and who was treated by the ordinary methods, was the first case in which I resorted to the large doses of quinia. About the middle of her third week she had reached such an exhausted condition that her case seemed hopeless. On the morning of the eighteenth day her temperature was 105° (had been 105½° the night previous), with a feeble pulse running at 165 (she was of a marked nervous temperament and had a high pulse-rate from the beginning). She was partly conscious. As a last resort, and not without a good deal of trepidation, especially on account of the feeble heart, I gave her 24 grains of quinia at one dose. By night her temperature had fallen to 100°; through the night she lay as though held in a vice, unable to move or speak, staring wildly, though conscious, and so deaf that she could scarcely hear one shouting in her ear. In the morning her temperature was 96°; surface cold and clammy. I felt guilty of having overdone the matter. But under gentle stimulation her temperature rose slowly, and convalescence set in and was rapid and complete.

In these two cases, and others in which the action of the heart was very feeble, the quinia seemed not to embarrass it; on the contrary, the heart gained in strength as the fever fell. In one case, a girl of eight years, in which there was a loud systolic murmur, an 18 grain dose was given to combat a temperature of 105½°, which rose suddenly, a few days after the crisis, and was accompanied by pain and stiffness in the joints, with tumultuous, though not very painful, action of the heart. The temperature rapidly fell, and did not rise again. The girl made a perfect recovery, no cardiac murmur being noticeable at last examination.

Concerning its influence upon the diarrhœa, which seems to be dreaded by so many, I noticed no aggravation in any of the cases. However, when the diarrhœa was profuse, bismuth subnitrate and morphia were added. In the fatal case from uncontrollable diarrhœa, I was particular to notice its action in this respect. When given every other night, sufficient was absorbed to reduce the temperature several degrees, and the diarrhœa was certainly not increased—rather moderated by the degree of quiet induced by the quinia and morphia. In one case, complicated with hemorrhage from the bowels, its full use was persisted in without aggravating the hemorrhage. In none of the cases could I pronounce it guilty of producing cystic trouble. In several cases there was slight, temporary irritability of the bladder, but in these cases turpentine was also being administered. I have seen the same amount of irritability in mild cases, in which the treatment was confined to small, repeated doses of aconite and careful nursing.

There is, however, one *so-called* objection to the quinia treatment: the *tinnitus*, producing temporary deafness. I have often considered this effect of the treatment a decided advantage; it has frequently shut out from the patients the noise and clamor of the street, and, still better, has prevented gossiping visitors and over-talkative nurses from annoying them.

Does the quinine treatment shorten the period of the fever? It has seemed to me to have no such effect; it merely "tides them over," and insures them a rapid convalescence. What, then, is the advantage gained by the heroic use of quinia? The same may be asked concerning the other methods of antipyretic treatment. Typhoid fever being a disease that, in spite of our present therapeutic knowledge, runs a certain and known course, we are of use only as we are skilful engineers. When the disease is of a mild type, and the physician not over-officious, the demands of the patient will be easily met, and time will bring convalescence. But when the virulence of the poison is such, or the resistance of the patient so feeble, that high temperature is the prime

factor and the main exhausting cause, then must be used means sufficiently powerful to reduce the heat and prevent the rapid combustion of tissue, etc. At the risk of being thought too imaginative, I would liken the typhoid patient to a man compelled to go a long, though reasonable, distance in a specified time. If the man be strong, and the way smooth and unobstructed, let him alone, do not embarrass or frighten him, and he will reach the goal safely; but, if he be heavily handicapped, or the way be rough and hilly, he will need help. Let a friend go with him; and, although he cannot shorten the distance, let him take the weary traveller into his conveyance and carry him a day's journey every other or third day—that's just what quinine does for the typhoid patient. The great relief it so often brings to the sufferer, whose burning skin, restless body, and delirious mind of one day is changed under its influence to the comparative quiet and rest of the next, is a reality, and, as such, enables him to gather some strength for a renewal of his painful journey over the rough and treacherous pathway; and such given periods of rest and recuperation mean success to the poor traveller with his burdensome freight of bacilli.

In croupous pneumonia the quinia treatment proved even more successful than in typhoid, although but seven cases were severe enough to demand its use, no mortality resulting. The drug was administered in the same manner as in typhoid, and no ill-effect upon heart or bladder was observed. In one plethoric patient, with severe pain and active delirium, wet cupping (about eight ounces), over the seat of pain, brought relief immediately, but had no effect upon the temperature, which registered 105½°. A 24 grain dose of quinia brought the desired result, and but two repetitions were necessary.

In "childbed fevers" its action was very gratifying; a large dose, combined with morphia, given early, being sufficient in most cases to control the symptoms. The following case seems of more than ordinary interest on account of the violence of the onset and severity of the symptoms. The patient was a delicate primipara with a tuberculous history; she had a comparatively easy confinement, and rested well afterwards. On the evening of the second day a relation called upon her and told her some very distressing family news. She was very much shocked, and took a severe chill. I did not see her until the next morning, when I found her deathly pale, her face pinched and anxious, mind delirious. Her temperature in axilla was 105¾°, and pulse 125. The abdomen was but slightly swollen, and not tender save on firm pressure directly over womb. The lochia were suppressed, and there was considerable twitching of the muscles and severe pain in back and head. Quinia (grs. xx) and morphia (gr. ⅙) were given at 9 A. M.; at 4 P. M. temperature was 102°, pulse 104; 12 grains more of quinia were given. At 10 P. M. temperature had risen to 104°, and grs. xx were administered. The patient was soon so thoroughly cinchonized that she could not hear one shouting at her. The next morning her temperature registered 101°, pulse 76; she was now kept moderately under quinia, and made a good though tedious convalescence.

As an example of how the free use of quinia may arrest serious inflammation, the following case may be of interest: On the afternoon of March 12, 1883, Wm. S., a peddler, while entering a house a couple of miles from town, was shot with a revolver, the ball entering the left side between the eighth and ninth ribs. He was seen about four hours after the injury, having been brought to town in a wagon, and was then suffering profoundly from shock, being unable to speak, though perfectly conscious. A small hypodermatic injection of morphia (⅛ grain) was given, and whiskey and ammonia administered guardedly. It being clear that the ball had penetrated the parietes, no effort was made to probe deeply for it; the wound of entrance was sealed. The man was kept at absolute rest and upon small, frequently repeated quantities of liquid nourishment. He passed a comfortable night. His urine, taken by the catheter, was freely mixed with blood. There was slight tenderness over the bladder, more marked over the region of the left kidney. On the next day, March 13, his temperature in the morning was 98½°, pulse 84; at noon 101½°, pulse 104; evening 101°, pulse 106. Urine removed by the catheter was still bloody.

He was kept mildly under opiates, and given a mixture of tr. aconiti rad., sp. æth. nit., and liq. ammon. ac.

March 14. Morning temperature 101¾°, pulse 106. At noon it rose suddenly to 104½°, accompanied by severe pain and tenderness over abdomen. It was decided to give him at once quinia, grs. xxiv, with morphia, ⅙ gr., and tr. aconiti rad., gtt. iij. At 5 P. M. temperature was 103¾°; at 10 P. M. 101½°, and on the following morning 99°. He perspired freely through the day; water still contained some blood. In the evening he began to expectorate small quantities of bloody sputa; a smaller dose of quinia was given (grs. xij), and in the morning his temperature was 97°. His bowels were now moved by hydr. chlor. mit., gr. j, with pulv. ip. comp., gr. ij, given every two hours. The bloody expectoration ceased, and the urine assumed its natural color. He then progressed rapidly, the external wound healing without suppuration, and served out his sentence in the county jail. When seen last he was on the tramp, and in nowise inconvenienced by the encysted ball.

ERYTHROXYLON COCA IN THE THROAT.

BY J. SOLIS-COHEN, M.D.,
OF PHILADELPHIA.

PREPARATIONS of coca have long been used constitutionally in diseases of the throat, and a somewhat famous wine of coca has been pushed in the drug market for some years, with the endorsement, among others, of several throat specialists in Europe and in America. It is not improbable that the sense of comfort following its use, after prolonged vocal effort, may be due in part to the anæsthetic properties now attracting attention; and that a part of the relief it brought to the sense of fatigue in the Peruvian runners, was likewise due to this influence.

In the *Revue méd. francais et étrangerè*, p. 751, November 19, 1881, M. Du Cazal calls attention to the properties of tincture of coca to produce local anæsthesia of the pharynx; and since that time the fluid extract has been similarly recommended.[1]

For nearly three years a bottle of the fluid extract of coca has had its place among the small array of drugs kept for immediate topical use in my office practice, and has been frequently employed with success to obtund, for the time, hyperæsthesia of the mucous membrane of the pharynx and the top of the larynx; but no suspicion had been aroused that the anæsthetic qualities of the drug might be absolute.

On learning of the excellent results reported from touching the conjunctival mucous membrane with a solution of hydrochlorate of cocaine, I determined to try it upon the pharynx and larynx in selected test cases. In one instance, touching a limited area in the pharynx, after the manner prescribed for the conjunctiva, produced such anæsthesia that the patient declared that he did not feel the contact of a probe, while the contact remained as perceptible as ever, immediately around. In another instance, in which laryngoscopic inspection was difficult, on account of hypersensitiveness of the palate and pharynx, the local applications produced almost immediate tolerance of the laryngoscopic mirror. For purposes of laryngoscopy, therefore, this agent may prove of the greatest service. Whether it will produce anæsthesia of the larynx sufficient to facilitate intralaryngeal manipulations, is much more doubtful. Upon a lady, on three separate occasions, I applied as much as ten minims of a four per cent. solution, at a time, keeping the brush within the larynx for at least five seconds, and repeating the application twice, at intervals of five minutes. Although the patient stated that she was barely conscious of the presence of the probe I subsequently placed upon one of her vocal bands, the spasmodic, sphincter-like contractions of the laryngeal muscles shut the interior of the larynx out of view as completely as if no anesthetic had been used. In similar experiments upon the larynx of a gentleman, with a two per cent. solution on two days, and a four per cent. solution on two days, the manipulations on the last day having been performed by Dr. Major, of Montreal, there was not sufficient restraint in the sphincter-like closure to watch the progress of the terminal extremity of an intralaryngeal electrode. Both of these patients were accustomed to ordinary intralaryngeal manipulations, and, therefore, accustomed to the presence of instruments within the larynx; but in neither instance, nor on any occasion, was there evidence of a sufficient anæsthesia to prevent the spasmodic reaction normally consequent upon the introduction of a foreign body within the larynx.

The reports of successes in Vienna, which have not yet reached this country in detail, render it probable that good results are attainable by some special method of manipulation.

[1] Medical Record, April 7, 1883, p. 384.

MEDICAL PROGRESS.

TREATMENT OF ABSCESS OF THE LIVER.—A few years ago M. Jules Rochard reported to the Académie de Médecine a method of healing abscesses of the liver by large and direct opening, combined with the Listerian antiseptic method. This operation consists, when the abscess is only suspected, without being diagnosticated, in using the needle of an aspirator. Then, if pus be found, the needle is used as a director along which a bistoury is carried, and the abscess is opened. The cavity is then injected with antiseptic solutions, and drained. About the same time, SURGEON-MAJOR OBERLIN, of the French Army, had occasion to treat several cases of abscess of the liver. He gives the history of three cases. The first case was aspirated with Potain's aspirator, a large amount of chocolate-colored pus drawn off, and the patient recovered.

The second case was that of a woman, thirty-six years of age; about f℥xviij of chocolate-colored pus were drawn off with Potain's aspirator. The patient then had an attack of intermittent fever, and the abscess partially refilled. A little more than f℥vj of pus was removed. About six weeks afterwards a third aspiration removed about f℥viij of pus. The fever continued, however, the patient got no better, and the abscess refilled. One week after the third aspiration the abscess was opened with a large trocar, the pus removed, and a caoutchouc tube introduced. A 1 to 40 solution of carbolic acid was then thrown into the cavity, and a Lister dressing applied after the injection had ceased to return clouded. The dressings were repeated daily for five days, when the first tube was replaced by a short one. The wound was completely cicatrized in a month.

M. OBERLIN believes that in using the aspirator it is well to make several punctures at intervals. He also states, what is not new, but worthy of further attention, that abscesses of the convexity of the liver cause pain in the right shoulder; but this is absent in cases of abscess of the left lobe or base.—*Archives de Médecine et de Pharm. Mil.*, October 1, 1884.

SPHYGMOGRAPHIC ANEURISMAL TRACINGS AS DIAGNOSTIC SIGNS.—In a note on this subject, DR. B. WARD RICHARDSON says:

In cases of doubtful aneurism of the great arteries in the cavities of the body, the sphygmograph comes into use with excellent effect. In order to apply it for this purpose, first take a reading from the radial pulse and fix that for comparison. Then place the sphygmograph firmly over the suspected pulsating part and take a reading there. Next compare the tracings. If the tracings correspond in indicating arterial stroke, and if there ought, naturally, to be no detectable pulsation at the suspected pulsating part, the evidence may be considered all but absolute that there is an aneurismal dilatation. If the pulsation were induced by a healthy artery pulsating beneath a tumor, or beneath an organ of the body—as the pancreas, liver, or stomach—the natural arterial tracing would not be educed; there would be nothing more than irregular up-and-down strokes.

In comparing the readings of the radial pulsations with those of an aneurism, the character rather than the largeness of the outlines must be taken into account. The outlines may correspond, and their sizes may correspond, and when this occurs the evidence is the more striking. But in matter of practice size is not of much moment. The outline is the thing to observe, and a distinctive difference may in some cases confirm the diagnosis. For example. I was consulted about a doubtful case of aneurism of the aorta, at the arch or at the innominate. The reading at the right radial pulse was very feeble but distinctive. By careful manipulation I obtained a perfectly corresponding pulse reading in the chest, at a point three inches above the right nipple in a line drawn from that nipple to the origin of the left sterno-cleido-mastoideus. But my pulse reading here was much larger than the reading at the radial. The systolic line was longer, the angle was more acute, the diastolic or descending line was longer, the aortic cleft more defined. The inference I drew from these observations was that there was an aneurismal dilatation in the ascending aorta, extending to the innominate and interfering with the force of the arterial stroke through the right subclavian and its branches, a diagnosis which has proved to be correct.

The grand point, however, which this mode of diagnosis settles is that it differentiates between an actual aneurism and an artery pulsating on a tumor. In the days of Harvey this point of diagnosis was once under practical discussion between Harvey himself and one of his contemporaries, and it has remained a difficulty up to the present time. I believe the difficulty is now well-nigh solved by the sphygmograph. Wherever there is a direct arterial pulsation a sphygmographic tracing can be obtained. Whenever the tracing gives the impulse stroke, the recoil, and the notch, an artery is directly writing the message.—*The Asclepiad*, October, 1884.

THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE FALLOPIAN TUBES.—In a paper on this subject, read before the International Medical Congress, in August, 1884, MARTIN, of Berlin, says that the diseases of the Fallopian tubes do not present the great difficulties of diagnosis described by writers generally.

It suffices, he says, to practise combined examination by the vagina and abdominal wall to recognize the tubes, and the recognition is quite easy when they are diseased. The tubes may be confounded with the round ligaments, or with a tumor developed in the broad ligaments.

Tumors of the Fallopian tubes occur in about six per cent. of women. The surgical treatment—extirpation—is very dangerous, and the prognosis is certainly worse than that of ovariotomy. Of 100 cases of ovariotomy he only lost 3 patients, whilst of 18 cases of salpingotomy, 5 had been fatal. Medical treatment should be resorted to before surgical interference.

SANGER reported that he had performed salpingotomy four times, with success. Simpson thought that an exploratory incision was always permissible.—*Annales de Gynécologie*, October, 1884.

EXCISION OF KIDNEY.—MR. RICHARD DAVY reports the case of a man, æt. 53 years, who had a tumor in the left groin, supposed to be a cyst involving the left kidney or ureter. He opened the patient's loin posteriorly, dissected down to the cyst-wall, laid hold of it with the lion forceps, opened it, and let out about sixteen fluidounces of dusky brown fluid; inserted his forefinger into the interior of the renal cyst, but could not feel any calculus. He removed the whole kidney by shelling it out, and ligatured separately the renal artery, vein, and ureter. Could not pass a probe down the ureter (left) to the bladder, as the probe impinged on a dense obstruction, and would not descend beyond about four inches. He next inserted a sponge, enveloped in oil-silk, into the chasm, and placed him in a special ward. The flaccid tumor measured seven by two and a half inches; it was the remnant of a kidney, no real kidney-structure being left, but only a huge partitioned fibro-cystic bag. The peritoneal cavity was, of course, not opened; and the suprarenal capsule was felt at the upper part of the gap, loosely connected. The patient was discharged two months after the operation, with the wound perfectly healed; and died five days afterwards of encephaloid carcinoma of the liver. —*British Med. Journal*, October 18, 1884.

TREATMENT OF MERCURIAL STOMATITIS.—ZEISSL recommends the following in cases of mercurial stomatitis:

℞.—Tincture of iodine, . . . f ʒj.
Hydrolat of canella, . . . f ʒiss.
Syrup of canella, . . . f ʒv.
Distilled water, . . . *ad* f ʒviij.—M.

To rinse out the mouth in cases with profuse salivation. If the breath is fetid, the following may be used:

℞.—Chlorine water, ... f ʒijss.
Decoction of marshmallow, . f ʒixss.
Honey of rose, ... f ʒx.—M.

—*L'Union Méd.*, October 18, 1884.

TREPHINING IN MASTOID AND TYMPANIC DISEASE.—DR. W. J. WHEELER, of Dublin, at the conclusion of an article on this subject, says:

Of the 35 cases in which the trephine was used, 4 terminated fatally, while the result in the other cases has not been reported; in the total number of cases, the results of which are differently specified, 17 per cent. were fatal, and 21 per cent. successful. Buck has collected 37 cases of suppurative inflammation in which the cases were left to nature (expectant treatment); 34 were fatal. It will be readily seen from the foregoing that the operation of trephining for mastoid disease is a fairly successful one, and, on the other hand, that, from the expectant treatment in suppurative inflammation there is little to look forward to but a fatal result. That the operation should be practised early is a self-evident fact; it is useless when pyæmia, meningitis, or phlebitis of the sinuses has appeared, although the first cerebral manifestations should not intimidate the surgeon from operating, and I doubt not but that good service will be done toward the patient by his attendant who advises operation even where no bone disease existed, but when the discharge from the tympanum has lasted for *a lengthened period*, and has not yielded to other treatment, such as syringing and enlarging the opening of the membrana tympani if necessary. Setons

and issues I believe to be of little use, for although only the mucous membrane may be engaged, yet we know that a blow on the mastoid process, a severe cold, a depressing illness, may cause disease to advance to the bone, pyæmia may ensue, or death by general cerebral irritation, without the formation of abscess. A well-accomplished operation will always give free vent to pus when existing, and prevent it passing to the brain through some of the numerous channels I have recorded, and will thus save the patient. I must deprecate the operation recommended by Dr. Bagroff—namely, the use of the gouge and galvano-cautery over the mastoid process; such procedure, as it appears to me, would be likely to set up irritation and inflammation. Unless, indeed, the suppuration is comparatively superficial, or discharging through a fistulous opening, I would not select to operate over the mastoid process; there one cannot remove the entire portion of the bone, on account of the proximity of the lateral sinus, and so cannot expose the dura mater, to do which I hold is very essential.

The site I would always select for operation, with the exceptions as above named, would be such as to place the lower border of the trephine on a level with the external auditory meatus, and anterior to a line dividing vertically the mastoid process. By adopting this course there will be no danger of wounding the lateral sinus, the tympanum and mastoid cells will be opened, giving full exit for discharge, the dura mater will be exposed, and should pus exist between it and the cranium, there will be ample freedom for its escape.—*Dublin Journal of Med. Sc.*, October, 1884.

PORRO OPERATION.—DR. LÉON DUMAS reports a case in which he performed the Porro operation on a woman, thirty years of age, for rachitic pelvis. The child was saved, but the mother died of peritonitis on the sixth day after the operation.—*Annales de Gynécol.*, October, 1884.

BULLET WOUND OF THE CEREBRAL HEMISPHERES; HEMIPLEGIA; RECOVERY.—MR. HERBERT PARSONS, of Monte Video, reports the case of a girl, æt. 13 years, who received a bullet wound through the mastoid process of the right temporal bone, and took a course inwards through the convolutions of the brain, with a slight downward direction. She fell down unconscious on receipt of the injury. One hour afterwards she had recovered complete consciousness, and conversed rationally. The pulse was 108, not very weak; no excitement. She vomited once. There were internal strabismus of the left eye, and complete loss of power over left leg and arm, but not loss of sensation. There was considerable hemorrhage from the seat of injury, which was situated just behind the right ear, but no protrusion of brain-substance externally, but it could be distinguished at the bottom of the wound, after stopping the blood-flow. She was lying on her left side, and, on introducing a bullet-probe into the wound, by its own weight it dropped down along the course of the ball until it was buried to the depth of six inches in the interior of the skull, and the end was in contact with some hard substance, as he thought, the internal surface of the opposite parietes of the skull, but possibly the bullet. The treatment he adopted was to fill up the orifice of the wound with iodoform, and over this pads of cotton-wool and lint. Cold water bandages were applied to the head, and a few doses of bromide of potassium were given to keep the nervous system from possible irritation.

The original dressing was left for several days, and when it came off the wound was closed; there was not more than a few drops of pus ever found, nor was there any inflammatory action in the surrounding pericranial tissue. She was in bed one week, on soup and milk diet with fruit; after that, she got up. There was never any fever or nervous disturbance beyond the simple fact of the hemiplegia. In one month she gained the use of her leg, and a few weeks after, of her arm. She is now perfectly well, and has not shown a sign of the injury since, though eighteen months have passed since the ball entered the head.—*British Med. Journal*, October 18, 1884.

THE COMPARATIVE ACTION OF THE DIFFERENT ALKALOIDS OF ACONITE ON THE HEART.—DR. A. TORSELLINI has recently made a series of experiments as to the action of the nitrates of aconitine, napelline, lycoctonine, and of aconitic acid on the heart of the frog and the toad. Roy's apparatus was used in the first cases, and Ranvier's cardiograph in the second. The results were as follows:

1. Nitrate of aconite caused, in the exsected heart a slight, in the removed heart strong diminution of the cardiac beat; and in the latter also a very slight and transitory lessening of the systolic elevation. In neither was the rhythm irregular.

2. Nitrate of napelline causes irregularity of the rhythm in each, lessens the systolic elevation, and causes no slowing of the heart-beats in the exsected heart, but an increased contraction of the unremoved heart.

3. Nitrate of lycoctonine slightly increases the beats of the exsected heart, increased the systolic elevation in both, and does not change the regularity of the heart's action in the least; on the contrary, it antagonizes the irregularity caused by napelline.

4. Aconitic acid acts on the heart in a decidedly paralyzing manner.

From these results it is seen that the different alkaloids of aconite not only act differently, but that some antagonize others, as regards the effects on the heart.—*Centralbl. für die gesammte Thérap.*, October, 1884.

THE SURGICAL NAIL.—M. MOTAIS, of Angers, presented to the French Association for the Advancement of Science a small instrument having the form of a finger-nail, and intended to cover the end of the finger and the nail. M. Motais has used it in removing axillary ganglia in cases of carcinoma of the breast; it may also be used instead of the rasp in operations on the periosteum, and for removing polypi from the uterus. It is shorter than the similar instrument used by Amussat, coming only to the extremity of the finger.—*Revue Méd. Franç. et Étrang.*, October 11, 1884.

EMPYEMA IN CHILDHOOD, AND ITS TREATMENT.—In an article on this subject, DR. V. SIMMONDS first considers the relative frequency of purulent pleuritic exudations in childhood. A large number of the cases are secondary, very frequently after scarlet fever, and fre-

quently after lobar and lobular pneumonia, in consequence of disease of the bony walls of the thorax, from purulent degeneration of the lymphatic glands, traumatism, pyæmic processes and tuberculosis. Of 100 cases, 31 followed pneumonia, 14 scarlatina, 12 tuberculosis, 8 measles, 6 traumatism, 5 typhoid fever, 2 caries of bone, 2 pertussis and diphtheria each, and a perforating hydatid cyst of the liver; 26 cases were primary. Of 240 cases, 140 were males, 100 females; 130 were five years old and under; 82 between five and ten years of age; 38 between ten and fifteen. Of 175 cases, 103 were of the left side, 65 of the right, and 7 bilateral.

The prognosis depends very much on the primary affection, and on the state of the child's health. Uncomplicated cases in well-developed children give a good prognosis, especially in those cases in which an operation is not performed, and in cases of perforation of the lung, which does not always lead to pneumonia.

Aspiration, as deciding between infiltration and exudation, is a very valuable aid in the diagnosis, and pricking of the lung-substance under antiseptic precautions is not injurious. If purulent exudation be found operative, interference is positively indicated, provided perforation into the pulmonary substance has not taken place, and circumstances favorable to spontaneous cure are not present. Even after perforation an operation should be performed if the exudation does not decrease, or becomes putrid, or if the general state of the child does not improve.

Simple puncture and aspiration is the most uncertain method of operating. Of 48 children treated by this method, 10 recovered independently of the operation, the majority from perforation of the empyema into the bronchi; 20 required more than one operation and were then treated by other means; 16 recovered; 6 were not benefited, and 6 died. Simmonds recommends the following operation: A trocar of 6 mm. calibre is introduced, a Nélaton's catheter quickly pushed through it, the canula withdrawn and the catheter tied to a glass tube, the external end of which is connected with a rubber tube, and this carried into a vessel containing borax water.

After the deformity of the thorax is reduced the catheter is fixed, about six inches of it being in the pleural cavity. He has treated 8 cases by this method, with 6 recoveries on the 19th, 28th, 29th, 31st, 47th and 49th days. Of the 2 fatal cases 1 died of general tuberculosis, the other, a weak six-months' old child, of broncho-pneumonia. Simmonds always aspirates in the anterior or middle axillary line, in the fifth or sixth intercostal space.—*Centralbl. f. d. gesammte Therapie*, September, 1884.

MORTIFICATION AND SEPARATION OF THE BOWEL IN STRANGULATED HERNIA; RECOVERY.—DR. JAMES V. LEWIS, of Indiana, reports the case of a man, æt. 51 years, who had a strangulated hernia, and had been vomiting stercoraceous matter for several days. The case was apparently beyond relief, either by taxis or the knife, and the only course left was to make an artificial anus.

He incised the skin only, when there exuded about two ounces of black, frothy, stercoraceous matter, containing small particles of undigested food and detached portions of omentum. This being cleared away, the bowel on examination proved to be a portion of the small intestine, most probably of the ileum, gangrenous and perforated in several places in the loop, which was about three inches in length, covered above by a small portion of the omentum also gangrenous and sloughing. A careful examination of the parts the following day showed the entire and complete separation of the gut, the ragged ends of the separated bowel remaining in the sac, held there by adhesions, as proved from the fact that an attempt to withdraw either portion was wholly futile. About two hours after the opening of the sac, and escape of the accumulated matter, there was a free evacuation of the bowels—the first for five or six days, both through the artificial opening and per rectum.

The dead portions of the gut, omentum, and integument were now removed as nearly as possible, and the cavity filled with lint saturated in a solution of glycerine and carbolic acid, one part of the latter to forty of the former, and the patient treated with the view of establishing an artificial anus. In two weeks all the gangrenous portions of the omentum, bowel, and superficial tissues had sloughed off and been removed, leaving a large cavity formerly occupied by omentum and bowel, the walls of which were to all appearances perfectly healthy, as extensive granulations had been thrown out, especially on the tegumentary portion. He now began slowly to close the opening by pressure and by approximating the edges with the aid of adhesive plaster, and from this time on very little passed through the opening. The patient is now entirely well.—*Columbus Med. Journ.*, October, 1884.

PERMANENT CORROSIVE SUBLIMATE SOLUTION.—MR. JOSEPH BULFIN, in a note to the *Medical Times and Gazette* of November 1st, says: I have for some time been engaged in experiments and trials of various antiseptics, carbolic acid, eucalyptus, thymol, and iodoform, and since reading your article on Sir Joseph Lister's address, have made some on the following, which I think would be worth a trial. The modification which I would venture to propose is as follows: Corrosive sublimate, ℥ij; white of egg, ℥vj: Barff's boroglyceride, ℥xii; distilled water, ℥cxxv. M. The strength of the corrosive sublimate in this solution will be nearly 1 to 500. As it would be almost impossible to add the precise quantity of albumen to render the bichloride of mercury unirritating and safe, it is desirable to add an excess of albumen; but an excess of albumen on the other hand, if allowed to decompose, would be objectionable in the extreme, to obviate which I suggest the introduction of boroglyceride which, without in any way interfering with the action of albumen, whether used from blood serum or white of egg, will guard against the products of decomposition from the use of an excessive amount. The proportion of mercury used in the compound may be increased or diminished as occasion may require, and all are non-volatile. Charpie, cotton-wool, or oakum saturated in such a solution would, in my opinion, form one of the best antiseptic dressings that I have yet seen, and for the chief part of this I am indebted to Sir Joseph Lister, my only contribution being the introduction of boroglyceride.—*Med. Times and Gazette*, November 1, 1884.

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SATURDAY, NOVEMBER 15, 1884.

CORROSIVE SUBLIMATE AS A SURGICAL DRESSING.

WITH the exception of iodoform, corrosive sublimate has almost entirely supplanted all other antiseptic agents in Continental Europe and this country, and if any one desires to dispel any doubts that he may entertain as to its efficacy and safety he need only study a paper published by Bruns, of Tübingen, in the *Archiv für klinische Chirurgie*, Bd. xxxi. Heft 1, and a paper read by Schede, of Hamburg, at the Copenhagen Congress, in which the astonishing results obtained, respectively, in 557 cases of operation and accidental wounds and 3700 major operations treated with sublimate dressings, are fully recorded.

Iodoform is not a germicide in the strict acceptation of that term, but it furnishes a soil unfavorable to the development and growth of schizomycetes, and in this way acts as a powerful preventive of putrefaction. Employed in the form of gauze of a strength varying from thirty to fifty per cent., it finds its most successful application in operations upon the mucous cavities, as the mouth, nares, pharynx, vagina, and rectum, and dispenses with the necessity for drainage. In all of these localities the wound, filled with the gauze, which may remain for from six to ten days, pursues, as a rule, a painless, aseptic course, there being little suppuration and no fever In some cases, frequent pulse, nausea, vomiting, and unrest indicate intoxication. If these symptoms persist or increase, a weaker gauze must be used, or another antiseptic dressing be substituted. Although not so potent an agent as the sublimate, iodoform is a valuable antiseptic in operations upon the mucous cavities, its good effects having been abundantly attested by the experiences of Mosetig, of Vienna, Küster, of Berlin, and Mikulicz, of Kracow, in many severe operations, as extirpation of the tongue, the jaws, the pharynx, œsophagus, larynx, rectum, and uterus.

By far the surest, most manageable, cheapest, most readily prepared, and, for these reasons, the most generally applicable of all antiseptic dressings is that made with corrosive chloride of mercury; and although we have to regret the fatal termination of one of his cases from septicæmia, we are glad that SIR JOSEPH LISTER has recently met with several imperfect results under the eucalyptus gauze, because his mishaps have demonstrated to him the great superiority of the sublimate, the good effects of which will doubtless soon be shown by its general adoption by British surgeons.

In an address delivered at the Medical Society of London, which may be found in the *Lancet* and the *British Medical Journal* for October 25, Sir Joseph points out the disadvantages of such volatile antiseptics as carbolic acid and eucalyptus oil. Unless carefully prepared, gauze containing either of these agents is liable to be deficient in the proper quantity, so that we are at the mercy of the manufacturer. Then, too, unless preserved in secure tins, its quality is soon impaired by evaporation, and the longer the gauze is kept upon the body, the less efficacious does it become. For these reasons, he has been busying himself in experimenting with corrosive sublimate, his aim having been to substitute for the volatile germicides a fixed one, which will be as effectual at the end of several weeks as it is when first applied, provided it is not soaked with the discharge.

Without going over the entire ground traversed by Sir Joseph, or reproducing his accurate observations and experiments, suffice it to say that he has succeeded in producing a non-irritating solution of the salt of a strength apparently far greater than has heretofore been employed, and, for this reason, far more potent, while, at the same time, so far as has been tested, perfectly safe. These qualities are secured by combining the sublimate with albumen, the inert coagulum of albuminate of mercury, first formed, being soluble in an excess of albumen. His source of the latter is the serum of horse's blood. In the majority of cases, a sero-sublimate gauze, made with 1 part of sublimate to 50 parts of serum, caused no local disturbance whatever, and, in his own person, a 1 to 30 solution, fixed to his arm for six hours, was unirritant, thereby showing that the combination deprives the sublimate of its irritating properties. The 1 to 100 gauze is said to be thoroughly trustworthy, and, therefore, best fitted for general use.

To one accustomed to using a 1 to 500 or 1 to 1000 gauze made from the watery solution, the

one per cent. gauze recommended by Sir Joseph may seem to be unnecessarily strong, but it should be remembered that the albumen mitigates the action of the mercury, and that when we employ a highly absorbent dressing, a larger proportion of the sublimate must be incorporated with it. Thus, cotton-wool will take up ten times its weight of a serous discharge. Hence, when saturated with the discharge, the sublimate is diluted ten times, and we believe that cheese-cloth absorbs three times its weight, sawdust four times its weight, and pine wood-wool ten times its weight of fluid. It will thus be seen that, being so much diluted, any of these substances should be treated with a stronger sero-sublimate solution than an ordinary watery solution. Hence, as Sir Joseph employs the one per cent. solution to prepare ordinary gauze, stronger solutions should be used if cotton-wool and wood-wool be the textures of the dressing.

Whether this gauze will stand the test as regards safety must be determined by a more extended experience than that to which it has as yet been subjected. Be this as it may, we fear that it will never come into general use either in hospital or private practice, simply from the difficulty which must attend obtaining the serum. Sir Joseph tells us that we may procure it from a horse-slaughterer, and that some gallons may be obtained from a single animal. If there be a single establishment for slaughtering horses in this city, we are not aware of its locality, and we have made not a few inquiries on this point. The serum of the blood of steers evidently will not answer, as we are informed that it is mixed with corpuscles, which are very rich in proteid substances, and which interfere materially with the antiseptic action of the sublimate.

In his address as well as in a paper read some months ago by Sir Joseph Lister, in regard to the use of antiseptics in army practice, we fail to find any mention of a most important point in the preparation of sublimate gauze and solutions, which is well known on this side of the water. Unless some means be taken to prevent it, the bichloride will be converted into calomel. This may be effectually obviated by adding to the solution pure chloride of sodium in the proportion of five grains to one of the sublimate. Gauze kept for any time, unless so protected, will become inefficacious.

It may be stated that in this city sublimate gauze is covered with purified sublimate jute as an outer dressing. This retails at thirty-five cents a pound, so that it has been found to be a rather expensive article in hospital practice. A far better material, because it is more absorbent, more elastic, and much cheaper, costing only fifteen cents a pound, is the wood-wool, or the prepared cones and needles of the pine, so extensively used by Esmarch and other German surgeons. For the information of our readers, from whom we receive not a few letters asking information on antiseptic dressings, we may state that this article is prepared by C. Am Ende, of Hoboken, and that it may be obtained in this city from Mr. Snowden, instrument maker, No. 7 South 11th Street,

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PAIN IN CHILDBIRTH.

PARTURITION has the sad preëminence among physiological functions of being attended with physical suffering; the absence of such suffering is altogether exceptional, and usually pain marks the beginning, the progress, and the end of the process, in some cases this pain being so severe that the reason is for the time lost, or fatal exhaustion results.

There is general agreement as to the immediate causes of the suffering in childbirth, but opinions differ as to why this suffering occurs. Nevertheless, the question is often asked. The answer usually given is the one found in the Bible; it was the penalty for disobedience inflicted first upon her who was called the mother of all living—"In sorrow thou shalt bring forth children." We may still ask, Why is it? what good end does it subserve? Depaul has suggested that nature does not permit the joys of maternity to be easily obtained, but makes pain an almost invariable law. Yet to many a mother the birth of a child is a sorrow rather than a joy; such child may be the proclamation of her own dishonor and born to a heritage of shame, or it comes when she is already overburdened with care and struggling with poverty or disease.

DR. ROME, in a recent number of the *Journal d'Accouchements*, presents several answers that have been given to the question. One of these is that the fœtus, having arrived at perfect intrauterine development, excites pains which become the determining cause of expulsive contractions. But anyone who has observed the progress of a single labor knows that a pain and a contraction of the uterus are not synonymes, for the latter begins before the former is felt, and continues after it ceases.

The suffering is said to increase maternal love; but a woman may give birth while she is under the influence of an anæsthetic, and her love for her offspring is not in the least lessened because she has escaped suffering. Yet we admit it is a general rule that an object is enhanced in value by the difficulty, the trials, the suffering endured in its attainment. The most gifted poetess of the century, if not of all ages, who, knowing from her own experience the agony of childbirth, has so graphically described it,

> "In the hour
> When the vail of the body we feel
> Rent round us, while torments reveal
> The motherhood's advent in power."

certainly seemed to regard maternal love as made stronger by the suffering of childbirth.

Another answer given is that the suffering prepares woman for her life of toil, of consecration, and of abnegation which follows the advent and bringing up of the new being. This is not at all satisfactory, for a few hours' suffering can by no means be the sole factor in producing such important and long-lasting results. Again, it is said, pains are the corrective of vice. The number of women whose virtue is preserved by their fear of suffering in childbirth is infinitely small, and, if that virtue is saved by the suffering of all those whose children are born in wedlock, the price is far too great.

Dr. Rome finally suggests the following explanation, which certainly is ingenious, if not conclusive: Wherever nature has an important act to accomplish she takes the most vigilant care, the most jealous precautions, to preserve her work. She desires the preservation of the species, and hence the reason for the pains of childbirth. Imagine, for an instant, if childbirth could occur without *bruit*, without noise, and without phenomena which would attract attention, what would be the result. Simply that the half of infants would silently disappear—no noise, no alarm; the same mystery which presided at their advent would preside at their departure.

A NEW AID IN THE DIAGNOSIS OF RENAL DISEASES.

DR. JULIUS WOLFF has called attention, in the *Deutsche med. Wochenschrift* for September 25, to what seems likely to be a valuable aid in the detection of renal disease, which, notwithstanding the improvement in our means of its detection, is still often recognized for the first time on the post-mortem table.

Several observers have noted that substances usually separated from the blood with great promptness by the healthy kidney, either do not appear at all in the urine or are found in much less quantity and less promptly, when the kidneys are diseased. Thus Bouchard discovered that in two cases of mercurial poisoning with renal disease the amount of mercury separated by the diseased kidneys was considerably less than in health. Hahn showed that certain odorous substances, as turpentine, which appear promptly in the urine in health failed to appear when the kidneys were diseased; and Rayer, Cortien, and De Beauvais observed that the characteristic odor of turpentine, asparagus, and the like was absent under similar circumstances. Chauvet also experimented with quinine, bromide and iodide of potassium, mercury, and salicylic acid, and found delay in the appearance and diminution in the quantity excreted, especially in the case of iodide of potassium. That these results are, however, not invariable was shown by Duckworth, Strauss, and Chauvet, who found that the odor of turpentine continued in Bright's disease.

Wolff observed that in the case of iodide of potassium there was a direct reversal in the quantity of the salt separated by the salivary glands and the kidneys. When a healthy person takes three grains of iodide of potassium, sixteen hours later a much larger quantity will be secreted by the kidneys than by the salivary glands. This may be proven by adding a drop of fuming nitric acid to starch-paper saturated with some of the urine, when the paper will be found to be much more vividly blue than starch-paper saturated with saliva and similarly treated. In renal diseases the reverse occurs, more iodine being excreted by the salivary glands than by the kidneys, while sometimes none at all is eliminated by the latter organs. So, too, the period for which the excretion is maintained is prolonged. In health, after the administration of three grains of the iodide, it continues to appear in the urine and saliva for from half a day to one and a half, while in renal disease it may continue to appear in the saliva for seven and a half days. This period is much longer than in those diseases of the stomach in which, in consequence of delayed absorption, excretion is prolonged, both by the salivary glands and kidneys, although the reversal characteristic of renal diseases does not exist.

This reversal of the natural order of iodine excretion—that is, the arrest of secretion of iodine by the kidneys with or without the simultaneously prolonged secretion by the salivary glands—occurs in cases of acute and chronic parenchymatous nephritis, in amyloid degeneration of the kidney, hemorrhagic nephritis, renal tumors, as sarcoma and in contracted kidney. This symptom proceeds *pari passu* with the albuminuria, so that from it may even be inferred the amount of albumen discharged. On the other hand, it is important to observe that where albuminuria is wanting, as is sometimes the case in contracted kidney, the defective iodine excretion remains, and becomes on this account a more valuable symptom. Wolff also refers to a case of highly fatty kidney with cirrhosis of the liver, as revealed by the autopsy, in which this symptom was markedly present, although there was absolutely no albuminuria during life. On the other hand, cases of renal disease do occur in which this arrest of iodine excretion is absent, but it is at least as unusual as the occasional absence of albuminuria in the same disease. Finally, the presence of pus in the urine from cystitis or pyelitis does not interfere with the availability of the symptom.

In explanation of this defective excretion, it is possible either that the iodine may unite itself with the renal epithelium, from which it is again reabsorbed and secreted with the saliva, accounting thus

for the larger quantity and longer presence of the iodine in the saliva, or it may not be taken up at all by the renal epithelium. The former might occur where a minimum amount of iodine appears in the urine, and the latter where none at all is present.

In the preparation of the starch-paper, which may be ordinary filtering paper dipped in a solution of starch and dried, care must be taken to protect it from the action of vapor of iodine, which may impregnate it, and thus give rise to error in the application of the test. The papers thus prepared should be packed away for use protected from the atmosphere. Care should also be taken not to test the saliva immediately after a meal, as the iodine sometimes escapes detection on account of dilution or its mechanical removal with the ingesta.

That these observations of Wolff are likely to be of great practical value we have already intimated. May they not also explain a fact which has surprised and puzzled all who have had to do with the therapeutics of Bright's disease, and especially of the contracted kidney? Reasonable as it seems that the latter form of disease ought to be benefited by the iodide of potassium, we are aware of no observations which go to prove that it is ever of any value whatever. In a not inconsiderable experience in the treatment of this affection, in which iodide of potassium has been freely used, we are unable to point to any results which go to show that it is at all useful in arresting interstitial hyperplasia.

THE LOWER UTERINE SEGMENT.

OBSTETRICIANS frequently speak of the lower uterine segment, but they are far from agreeing as to what this segment is. These differences of opinion are strikingly presented by PROF. LAHS, in a recent number of the *Archiv für Gynäkologie*, in which he devote sseveral pages to answering the question, What is the under uterine segment? Lahs teaches that this segment is that part of the uterus which in the latter period of pregnancy and at the beginning of labor is situated below the superior strait; in other words, the pelvic inlet marks its superior boundary. Its lower boundary is the external os uteri, and thus this segment includes the cervical canal and the ring of Müller.

Those who are familiar with the diagram which Dr. Robert Barnes has given, expressing his theory of placenta prævia, will see that this definition, so far as the upper limit of this segment is concerned, corresponds very nearly with that presented by him of the cervical zone, the other two zones being the fundal and the equatorial. Practically, it seems to us that the lower uterine segment is all that part of the uterus which in the latter months of pregnancy or in labor must be developed into a cylindrical canal for the transmission of the fœtus.

Lahs states that the terms cervix and cervical canal of the uterus ought to be cast aside in referring to women advanced in pregnancy and those in labor, since anatomical studies of these parts are yet incomplete.

INJUSTICE TO DR. EMMET.

DR. EUSTACHE contributes an elaborate article to the *Archives de Tocologie* for September upon Emmet's operation. In the course of the article he does injustice to Dr. Emmet by attributing to him the performance of the operation with indications which he would be far from accepting. Thus he uses the following language: "For Emmet and his numerous adepts in America the question admits no doubts. If the cervix is torn, this tear is the cause of all the uterine troubles the woman has in a very large number of cases. Cervical ulcerations, uterine engorgement, induration and shortening of the ligaments, leucorrhœa, lumbar and hypogastric pains, everything, in a word, has its point of departure in a laceration of the cervix; these different morbid phenomena cannot disappear until the rent is cured by a plastic operation."

Probably Dr. Emmet's last published utterance upon the subject was made a few weeks since in a letter to Dr. Joseph Taber Johnson, of Washington, found in the *Journal of the American Medical Association*, in which he speaks very necessarily and justly, we think, of "the general abuse into which the practice of the operation has fallen." He then says, "Everybody is performing it, and very few are doing it with any purpose except to close a fissure. The operation should never be done without there are marked symptoms calling for it."

This extract shows that Eustache has done great injustice to our countryman in regard to the indications for the operation in question; and we might add that those American gynecologists who have given the most careful and conscientious study to the subject are quite as conservative as is Dr. Emmet.

SOCIETY PROCEEDINGS.

NEW YORK SURGICAL SOCIETY.

Stated Meeting, October 28, 1884.

THE PRESIDENT, DR. ROBERT F. WEIR, IN THE CHAIR.

DEFORMITY OF THE HANDS FROM CICATRICIAL CONTRACTIONS, FOLLOWING EXTENSIVE BURNS.

DR. A. C. POST presented a patient under treatment for complicated deformities of the hands from burns, which were inflicted nearly two years ago. The patient was a young woman, who had attempted to wash with benzine, by gaslight, long kid-gloves which were on her hands and forearms. The benzine took fire, and the forearms and hands were very severely burned. She

came under Dr. Post's care within a few weeks after the injury, but it was a long time before the burns were sufficiently healed to enable him to take any active measures to correct the deformities which they had occasioned. Within the last year a series of operations had been performed chiefly to overcome the forced flexion of the fingers at the articulations between the first and second, and second and third phalanges, and these operations had been attended by a gratifying measure of success. The last operation was performed nearly seven weeks ago. It was designed to overcome an exaggerated extension or backward flexion at the metacarpo-phalangeal articulations. It consisted in numerous oblique incisions across the back of the hands and fingers, extending through the whole thickness of the cicatricial tissue, and dividing it into small rhomboidal segments. The fingers were then forced into a bent position nearly at right angles, and held in that position by narrow splints of malleable iron, one for each finger, applied to the palmar surface of the finger, hand, and forearm, and held in place by strips of adhesive plaster and roller bandages. Before the splints were applied, the wounds were washed with a solution of mercuric bichloride, and dusted with subnitrate of bismuth. The wounds were healed within twelve days from the time of the operation. The dressings have been repeated three times a week, passive motion being made freely at each dressing. For the last three weeks the splints have been left off for half a day before each dressing, and active and passive movements have been freely resorted to, the backward flexion of the phalanges has been entirely overcome, and the patient is regaining the use of the fingers. Dr. Post made the remark that in the division of cicatricial bands the wounds healed more rapidly, and with less irritation when a large number of incisions is made, than when the incisions are less numerous, and with wider intervals between them.

HYPERPLASTIC FOLLICULAR GOITRE.

DR. A. G. GERSTER presented a patient, a female, twenty-four years of age, a native of Bohemia, whose goitre cannot be said to be endemic, from whom twenty days ago he removed the right half of the thyroid gland. The patient said that she had had the goitre since her childhood, and also that about ten years ago she had some exophthalmos, and suffered somewhat from palpitation of the heart. About one year ago the goitre began to grow rapidly and was still growing and extended upwards and backwards along the course of the sterno-cleido-mastoid muscle, its length in this direction measuring three and a half inches. She also began to suffer from dyspnœa, especially when going up stairs or walking rapidly, and desired the removal of the tumor.

Puncture being performed, no liquid was found. Examination of the growth after its removal revealed that fluctuation was due to gelatinous deposits in the tumor.

It might be asked why he did not resort to other methods of treatment before performing extirpation. The chief reason was that he felt at the lower portion of the tumor two distinct nodules, probably calcareous in character, and subsequent examination showed that the assumption was correct.

The method of removal was by a flap incision, commencing at the middle of the anterior margin of the sterno-mastoid, carrying it around the circumference of the tumor and back to the lowest point of the border of the sterno-cleido-mastoid muscle. Having exposed the capsule, the enlarged body was dissected out in the usual manner by dividing such strands of tissue as had been grasped between the blades of the forceps. From seventy to seventy-five ligatures were required in dissecting out the entire tumor, and not more than an ounce of blood was lost during the operation. The tumor was very closely adherent to the anterior portion of the trachea and cricoid cartilage, and at that point dissection was most difficult. The wound was united by a number of deep sutures. The muscles which were cut were the sterno-hyoid, and a large portion of the sterno-cleido-mastoid on the right side, which were united with catgut sutures, and finally the flap was attached with two continuous sutures, and an ample dressing, consisting of some iodoform gauze and a bag of sublimate sawdust, was placed over the wound. Union by first intention took place, except at one point where an absorbable drainage-tube had been introduced, and where a few granulations remained. The tumor exhibited represented the right lobe of the thyroid gland. The left lobe was normal, and was allowed to remain.

DR. GERSTER thought the flap operation was preferable in these cases to the longitudinal incision; it gives more room than does a longitudinal incision.

DR. L. A. STIMSON presented specimens from a case of

SPONTANEOUS FRACTURE OF BOTH FEMORA.

The patient, a man fifty-one years of age, was admitted to Bellevue Hospital October 16, 1884, and died October 23d. He was a carpenter, and had always been robust and healthy until last winter, when he began to feel weak and suffer from aching pains in both thighs. The pain continuing, he ceased to work, but did not take to his bed. His strength diminished, he lost flesh. The day before admission, while walking across the room, he caught his toe in the oil-cloth, fell, and was unable to rise.

On admission, each femur was found to be broken at about the junction of the upper and middle third. He failed rapidly, without fever or complaint of pain, became dull, semi-unconscious, and died on the eighth day. Examination of the urine showed a specific gravity of 1004; no albumen or casts.

The autopsy revealed only a large stone in the pelvis of each kidney, which were shown, one weighing five ounces and six grains, the other one ounce four hundred and thirty-two grains.

The portions of the femur presented were those adjoining the fractures. All four pieces showed an advanced stage of osteoporosis, the compact tissue and the wall of the shaft had almost entirely given place to frail, spongy tissue. Scales of bone fell off at the touch, and one of the fragments had almost crumbled to pieces by the slight handling it had received since removal. The diameter of each bone was as great as usual, but the medullary canal was very large. Each canal was occupied by a dark blood clot nearly two inches long. Examination of the other bones was not allowed. A fragment of bone that weighed twenty-nine centi-

grammes after having been boiled and dried, was decalcified with nitric acid, and then weighed eleven centigrammes, which indicates that the percentage of inorganic matter in the specimen does not differ materially from the normal. The kidneys showed dilated pelves and calices, with marked atrophy of the cortical substance, and it was remarkable that with stones of that size there was no evidence of kidney disease, either irritative or obstructive in haracter.

DR. STIMSON also presented

AN ORDINARY LEAD-PENCIL REMOVED FROM THE PENIS AND BLADDER

of an unmarried man, forty-six years of age. The pencil was seven and one-sixteenth inches long, had been in place forty-hours, and was removed through a perineal incision. The patient said he introduced it because he found himself unable to urinate, but there was nothing in his history, or in the condition of the urethra, to confirm the excuse.

DR. POST had had occasion, many years ago, to remove, through a perineal opening, a short piece of a lead-pencil from the neck of the bladder. The piece had been sharpened at one end, and the patient had taken the precaution to make it smooth by covering it with a little ball of sealing wax.

TUMORS OF THE BLADDER; CYSTOTOMY.

DR. LITTLE presented a number of tumors which he had removed from the bladder of a patient in St. Luke's Hospital, who gave the following history, which was kindly furnished by Dr. Ludlow, of the house staff.

James McA., aged forty-nine, married, a car-driver by occupation, and a native of Ireland. His family history is good. About eight years ago he had a sudden hemorrhage from the bladder while urinating. For two days previous he had frequent micturition and pain at the symphysis pubis. From this time up to one year ago the hemorrhage recurred at intervals of three or four months, and lasted about as many days. During all this time micturition was not very frequent, and he continued at work. Then, about one year ago, the quantity of urine voided steadily diminished for about one week, and then stopped altogether, and it was necessary to resort to catheterization. Since this time he has constantly used the catheter, as he has been unable at any time to pass more than a small quantity of urine, and that with great pain. The desire to urinate has become more frequent. The patient was sent to Dr. Little's Clinic at the Post Graduate School, by Dr. W. B. Wallace, about two months ago.

On examination no calculus was found, and it was discovered that the introduction of a sound or a soft catheter was always followed by a fresh hemorrhage into the bladder. He was able to hold his urine without pain for six or eight hours at a time.

The symptoms indicating a growth in the bladder, he was sent to St. Luke's Hospital for an exploratory operation. A consultation was held and the operation advised. An examination of the urine showed pus, blood, mucus, and triple phosphates. No casts or shreds of tumor were found.

On October 27th Dr. Little performed median cystotomy. On introducing the finger a number of soft tumors could be detected. These were situated at the trigone of the bladder between and extending beyond the orifices of the ureters. A number could also be felt attached to the upper surface of the bladder. The situation of these growths being distinctly made out by the finger, Thompson's tumor forceps was introduced and the tumors seized and twisted or bitten off from their attachments. It was found necessary to enlarge the opening in the bladder by a slight incision downwards toward the prostate in order to introduce the forceps with facility. Twenty distinct masses, most of them seeming to be separate tumors, were removed. These varied from the size of a hazel-nut to that of a hickory nut. They all seemed to be villous in character. A large number of small pieces, evidently torn off from larger tumors, were also removed. The surfaces of the bladder after the removed of these growths was left considerably roughened. Two orifices large enough to allow of the introduction of the tip of the finger could be felt in the situation of the openings of the ureters, these seemed to be the dilated orifices of the ureters.

The hemorrhage during the operation was considerable, but not enough to be alarming at any time. After the operation was completed the bladder was thoroughly washed out with hot boro-salicylic acid solution. This seemed greatly to lessen the hemorrhage. The wound was left open, no tube or catheter being used. During the evening following the operation the hemorrhage at times was very free. Dr. Hance, the house surgeon, tried injecting a solution of tannic acid without effect, finally he succeeded in controlling the hemorrhage by packing the rectum with ice and applying ice-bags over the pubes.

October 28th. Patient's condition is good. Temperature 99°. Urine stained with blood.

(Since the last notes in the history furnished by Dr. Ludlow, and read to the Society, the patient has been steadily improving, passing nearly all his urine from the penis, without pain, free from hemorrhage, and without recourse to a catheter.)

The microscopic examination of the tumor will be reported at the next meeting of the Society.

RUPTURE OF BLADDER (INTRAPERITONEAL), WITH FRACTURED PELVIS; LAPAROTOMY AND SUTURE OF BLADDER; DEATH.

DR. W. T. BULL presented a specimen with this history: A laborer, forty-six years of age, was brought to the Chamber Street Hospital October 27, 1884, at 12.27 P.M., having fallen from the first floor to the cellar through an elevator shaft, a distance of sixteen feet. He was unconscious on admission. Respiration 31, shallow; pulse 96; temperature 95°, surface cold; presented evidences of the following injuries: Lacerated wounds of right temple, fracture of the left radius (Colles's), and fracture of right side of pelvis, the exact location of which was not made out. Three hours later, while still unconscious, a catheter was passed into the bladder without difficulty, and ℥iss of bloody urine withdrawn. Temperature 97½°; pulse 78; respiration 40. A No. 30 French steel sound also passed readily. An hour later ℥ss of bloody urine was withdrawn by catheter, and about the same amount for three successive hours.

Stimulants and hot-air bath. The man gradually regained consciousness, but was very restless, and complained of pain in the lower part of the abdomen, but evinced no desire to urinate. Pulse 120, weak; respiration 44; temperature 97½°. There was dulness in both iliac regions and the hypogastrium, all on the same level, and half way to the umbilicus. No uncommon swelling. On introducing a black-rubber catheter as far as the bladder, ℥ij of bloody urine were withdrawn, but ℥ij with clots were expelled when the instrument was pushed to a depth of eleven inches from the eye of the catheter. With a silver catheter the point gave to the finger the impression of engaging in a mesh of soft tissue, after it had been passed quite beyond the os internum. At midnight, twelve hours from the time of injury, pulse 150; respiration 44; temperature 96°. An hour later the condition was but little changed, the temperature being 98°; pulse 140; respiration 44. I saw the patient at this hour with Dr. F. W. Murray, and feeling certain, from a consideration of the symptoms above enumerated, that a rupture of the bladder had occurred, either into the peritonetal cavity or into the subperitoneal tissue anterior to the bladder, decided to make an exploratory incision into the abdominal wall. Ether was administered, Dr. Murray and the House Surgeon, Dr. Mack, assisting. Before making the incision it was ascertained that the pelvis was fractured only through the body and descending ramus. After opening the subperitoneal connective tissue much blood but no urine was found to be extravasated in its meshes. On cutting through the peritoneum to the extent of three inches several ounces of thin, bloody fluid, apparently urine, escaped, and the small intestines floated into the wound and obscured both vision and touch. The presence of the intestines rendered further exploration so uncertain that I extended the abdominal incision to five inches, and drew out all the coils of intestine that were accessible, and had them held on the left side protected by towels wet in warm water. The bladder was now drawn upwards and forwards over the symphysis, and held by a hook. A rent was now plainly seen in its posterior wall, commencing just below the point of its peritoneal covering, and extending one and three-quarters of an inch backwards. Its edges were slightly everted, displaying the mucous membrane, and a catheter introduced per urethram emerged through the rent. The wound in the bladder was then closed by seven carbolized silk sutures introduced from below upwards, and passed like a Lembert's intestinal suture through the peritoneal coat only. It was estimated that the sutures were placed at intervals of from one-eighth to one-quarter of an inch. The bloody fluid and a few clots were then sponged out of the abdominal cavity, the intestines replaced, and the incision in the parietes closed with four silver wire, six silk, and thirteen catgut sutures. A dressing of iodoform and absorbent cotton was applied, a small rubber drain being left at the lower angle of the wound. A soft rubber catheter was tied in the bladder.

I choose this method of drainage of that viscus, in preference to a median cystotomy, because I thought it would prove efficient, while the care of a perineal wound would be likely to interfere with the quiet necessary for the open management of the fractured pelvis. Again, the patient's condition did not permit continuing the operation longer than was necessary, and it seemed to me that the cystotomy could be done later if the catheter did not drain the bladder satisfactorily. The operation lasted one hour, and, during its performance, tincture of digitalis and whiskey were several times injected subcutaneously. At its close the pulse was 130, and of better volume and stronger than before; respirations were 40, and shallow. One could truthfully say that, notwithstanding the operative attack and the etherization, which was conducted with great care, the man's condition was no worse than before it was begun. In spite of all efforts to improve his condition, the man died comatose seven hours after the operation and nineteen hours from the time of injury. In the interval between the operation and his death two ounces of clear urine passed through the catheter. Only an incomplete autopsy was possible. Dr. Murray, who kindly examined the body, reported to me that on opening the abdomen he found much extravasated blood in the subperitoneal tissue of both iliac and the right lumbar regions, the pelvis fractured through the body and descending ramus of the right side, and the fragments of the horizontal portion separated by an interval of one inch. The peritoneal cavity contained no urine, the intestines were healthy, but Douglas's cul-de-sac contained about one ounce of fluid blood. The urethra, rectum, and bladder were removed en masse, and presented no lesions except some submucous ecchymoses in the bladder, and the rent closed by suture in the posterior wall of the bladder. Before opening that viscus, however, it was filled with water through a funnel introduced into the urethra. A little water escaped between the two lowest sutures. It was found that, while the other sutures were introduced at pretty regular intervals of from ⅛ to ¼ of an inch, these two sutures covered an extent of wound equal to ½ an inch. The wound in the mucous membrane had about the same extent as that of the peritoneal coat—1¾ inches—and its edges were gaping inwardly. The bladder was completely empty and contracted; kidneys were healthy; other parts could not be examined.

Dr. Bull said that he had felt justified in giving this patient the chance of the operation, in spite of his other injuries, feeling sure of the diagnosis, and knowing that his greatest danger was from allowing the extravasated urine and blood to remain in the peritoneal cavity. He had been surprised at the fact that, after opening the peritoneal cavity, the intestines, though not distended, were so much in the way that he could get no idea of the state of the bladder save that it was empty, and he believed that, by putting them aside, he did no harm, and gained much in time and the facility of exploring the bladder-wound. It was not easy to introduce the deepest sutures. He had made every effort to close the wound carefully, but had failed, as the injection of the bladder on autopsy showed, to do so perfectly at its deepest part. At the same time he thought that, as the adhesion of the peritoneal membrane took place so rapidly, occurring, as examinations after ovariotomy have shown, in from six to twelve hours, the wound would not have "leaked" had the patient lived. This seems all the more likely, as the drainage through the catheter was perfect, two ounces having flowed away in the seven hours before death, and the bladder being found quite empty and contracted.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

Semi-Annual Conversational Meeting, Oct. 23, 1884.

THE PRESIDENT, E. O. SHAKESPEARE, M.D., IN THE CHAIR.

DR. FRANCIS DELAFIELD, of New York, by invitation, read a paper on

THE PATHOLOGY OF BRONCHO-PNEUMONIA.

(See page 534.)

DR. PEPPER said that he had listened with very unusual interest to the paper of Dr. Delafield, in which he had so distinctly and concisely set forth his views on this very common disease.

He thought that all who had listened to Dr. Delafield would agree with him in congratulating the author upon the clearness and force with which he had described a condition which had hitherto often been confused by prolix description and by want of definiteness in separating different anatomical conditions. In regard to the term "broncho-pneumonia," which Dr. Delafield prefers, he has proved by his anatomical studies of the infiltration of the bronchial walls and of the surrounding parenchyma, that this term is strictly applicable to the cases upon which this paper is based.

Dr. Pepper stated, however, that though chiefly from a clinical standpoint, he was inclined to prefer the term catarrhal pneumonia, as probably including the form described by Dr. Delafield, as well as certain other forms which seem to him to be necessarily included in a complete picture of the disease.

For instance, there are many cases in adults which begin with rigor, followed by high fever, with temperature of 102½° to 104° F., with cough hard and dry at first and later with muco-purulent expectoration, with no very definite physical signs, careful examination will show local impairment of resonance, coarse crackling râles on deep inspiration and weak vesicular murmur. This condition may be limited to the apex or to the neighborhood of the root of one lung, or may occur elsewhere. The cases have a duration of from eight to twelve days, and terminates by lysis with resolution, though not rarely some cough remains, and the lung is sensitive and prone to recurring attacks, which in subjects predisposed to phthisis may induce that disease.

It seems to me difficult to regard these cases as anything else than mild catarrhal pneumonia; for this type of pneumonia agrees with other catarrhal affections in the wide range of severity presented by different cases. On the other hand, there are cases much more common in children in which disease extends from the bronchial tubes into the lobules to which they lead.

The commonly accepted opinion that the lining of the alveoli and air vesicles are susceptible to catarrhal inflammation, appears to me well established. In such cases the disease may extend outwards to the peribronchial tissue, as emphasized by Dr. Delafield, and lead to secondary interstitial changes, and also in consequence of obstruction of the bronchi, atelectasis occurs; the aspiration of irritating bronchial products fills some of the alveoli, or finally they become impacted with the results of catarrhal inflammation of their walls. Subsequently, caseation with softening may give rise to small abscesses with breaking down of the walls of the air vesicles or with perforation of the pleura, or inspissation may occur with reabsorption of infectious material with the development of general tuberculosis.

It did not seem necessary to dwell upon the cases in which atelectasis occurred as a primary condition with the subsequent development of pneumonic centres.

It seems to him impossible to consider catarrhal pneumonia without taking the comprehensive view which would include all the varieties above indicated; though the term "broncho-pneumonia" as used by Dr. Delafield, might be most appropriate to the special conditions described by him.

Allusion was made to the very interesting physical signs attending the course of atelectasis in the course of catarrhal pneumonia of children or of adults where considerable areas of the lung, or even an entire lung might pass into this state, to be followed before long by the reëstablishment of respiration and the disappearance of the physical signs. Difficult questions of differential diagnosis may present themselves, requiring critical examination. From an allusion made by Dr. Delafield, it appeared that he regarded lobar pneumonia as being, like broncho-pneumonia, induced by the ordinary causes of idiopathic inflammation. The argument does not favor all lobar pneumonia being a specific constitutional disease, or as dependent upon a special microbe, did not appear to Dr. Pepper to be conclusive, and he was glad to know, from the remarks of Dr. Delafield, that he holds the same view.

DR. BRUEN said he rose to call attention to the observations of Hamilton, of Aberdeen, in reference to the peculiar basement membrane of the bronchial tubes, which determines the chronicity of bronchitis, and probably the interstitial changes in chronic broncho-pneumonia. Hamilton, in speaking of the denseness of this basement membrane, gives it the importance of a fascia, which determines the direction in which the inflammatory products of bronchitis shall be absorbed, viz.,, by the lymphatics, rather than by free exudation into the bronchial lumen. The interlobular connective tissues are permeated with fibrous bands, which radiate from the fibrous coat of the bronchi toward the pleural surface. Dr. Bruen thought that if careful study of the lymphatics were made, that the absorbed products of an acute or subacute inflammation could be traced throughout the lung, finally leading to enlargement of the bronchial glands.

The importance of the basement membrane is further illustrated by the phenomena of pneumonikoniosis and anthracosis. Immediate absorption from the bronchial tubes does not occur, although the tubes are always exposed to carbonaceous matter as evinced by the blackened sputa, yet the tubes are unpigmented, the carbonaceous or organic dust being carried down into the alveoli, whence it is absorbed, and the whole parenchyma of the lungs and the bronchial glands are blackened, but always strictly in the course of the lymphatics.

In children of a strumous habit forms of bronchitis of an obscure nature often occur. Congested areas near the root of the lung are recognizable—abundant mucous râles and frequently laryngeal spasm at intervals is an important symptom. These symptoms are often referable to enlargement of the bronchial glands—and the nervous symptoms are due to irritation of the pneumogastric nerves.

DR. J. C. WILSON asked whether Dr. Delafield designed to describe one variety of a group of affections to which the terms broncho-pneumonia, catarrhal pneumonia, desquamative pneumonia, etc., are somewhat vaguely and interchangeably applied, or to include the whole group in his account, and under the designation of broncho-pneumonia. If Dr. Wilson had understood the paper aright, he thought it certainly had referred to an especial variety of the affection in question, for there are encountered cases which differ both clinically and anatomically from the disease described by Dr. Delafield, and in which the lesions spread not only in a direction internal from the affected bronchial tubes to the peribronchial structures, but also in the direction of the long axis of the tubes to involve the terminal (subpleural) vesicles, and this, according to widely accepted views, often without antecedent atelectasis.

DR. CARPENTER said that he had very little, indeed, to give of value in a pathological discussion, but would say, at the same time, that after thirty years' experience he had arrived at certain conclusions, not perhaps new, but which had been gathered in one set of cases, viz., anthracosis. They are a very striking set of cases. They all originate in a bronchitis, which differs from the ordinary form of that disorder in one very striking symptom, viz., great oppression of breathing. This oppression is far greater than can be accounted for by ordinary bronchial inflammation. It depends on interstitial disease or peribronchitis. A true broncho-pneumonia is set up, the cause being a special one, viz., inhalation of coal dust. In these cases so great obstruction to the circulation is caused by the interstitial exudation that the circulation is very seriously embarrassed. The heart suffers—dilatation, or hypertrophy with dilatation, is produced, and a form of dyspnœa, known as miners' asthma, occurs. These cases are essentially chronic ones. He had only the day before seen a patient die with this disease who had been under his care for several years, and in whom no lesions but those of peribronchitis could be detected.

Many of these cases, however, in a chronic progress, do develop all the symptoms of phthisis. Slow alterations of structure occur, cavities form, and all the pathological conditions of the so-called fibroid phthisis are found on post-mortem examination. He, therefore, claimed that these cases are entitled to constitute a special form of broncho-pneumonia. He agreed with Dr. Pepper that acute or subacute broncho-pneumonia left sensitive areas, leading often to subsequent phthisis. In his observation, fibroid phthisis was not a true tuberculosis, but a chronic degeneration of lung-tissue, due to a preëxisting broncho-pneumonia, such as he had observed in anthracosis.

DR. OSLER said that his experience in many points tallied with that of Prof. Delafield. In the broncho-pneumonia of adults the pneumonic process, he believed, most usually spreads from the bronchi. He referred also to those cases of broncho-pneumonia which followed brain injury, or disease affecting the pneumogastric centres. In such cases the disease was deeply seated, and we find that the morbid process often surrounds the bronchi, but does not involve the terminal alveoli. The reverse is true in the case of children, in whom the disease is more peripheral, is nearer, and may be just beneath, the pleura. He was glad that Dr. Carpenter had raised the point as to anthracosis. Dr. Osler had been able to examine several cases of this affection in its very early stages, and could testify that it begins in the bronchi and thence extends to the peribronchial tissues. It is primarily then a broncho-pneumonia, and in every case he had found small disseminated black lumps resulting from localized broncho-pneumonia, which by their fusion and extension, produce a form of fibroid phthisis.

DR. TYSON had little to add to what had already been said. He had, however, first expressed his gratification at the simple clearness with which Dr. Delafield had presented the question. Dr. Tyson had been very much impressed with the diversity of nomenclature of the disease under consideration, and it would be useful if we could agree upon some common term. For a long time desquamative pneumonia had seemed to him to be the best term, but from a study of the pathological histology, he thought the term peribronchial pneumonia more suitable. If now the adjective desquamative be added, we have a term which will be still more comprehensive and exact.

Dr. Tyson thought that our understanding of the enormous peribronchial cellular infiltration would be much simplified if we lose sight altogether of the idea that there is essentially any form of inflammation except interstitial inflammation. He had come to the conclusion that there is no such thing as catarrhal or parenchymatous inflammation, the phenomena usually considered characteristic of these being secondary. The wandering out and massing of leucocytes is the one essential factor of the inflammatory process. He would like to ask Dr. Delafield where he would draw the line between this process and tubercular phthisis. He presumed that Dr. Delafield agreed with all other observers in admitting that broncho-pneumonia does sometimes terminate in tubercular phthisis, and when this occurs it is often difficult to say where the broncho-pneumonia ends and where the phthisis begins, although the extremes may be easy of recognition.

DR. FORMAD would like to ask the lecturer's instruction how to distinguish broncho-pneumonia in its *chronic* form from *tubercular* broncho-pneumonia. Like Dr. Tyson, he felt that he was unable to draw a line of distinction between the two affections. Indeed, Dr. Formad was unaware of a non-tubercular form of broncho-pneumonia in man until he saw Dr. Delafield's excellent records and representations of this lesion; this being explained by the fact that Dr. Formad dealt almost entirely with the dead, while most of the speakers had shown that although broncho-pneumonia in its *acute* form was a common disease, it did not prove fatal in the vast majority of cases, the patients either getting well or the disease assuming a chronic course.

Dr. Formad fully recognized *acute* broncho-pneumonia as an independent affection, although he believed he had observed this lesion *post-mortem* only in dogs, such as induced artificially by means of forced inhalations of a spray containing irritating particles. Dogs with such artificial broncho-pneumonia (even if tuberculous sputum was resorted to to induce it) Dr. Formad had observed always to recover within a couple of months; but if the dogs were killed before the end of the first month after the operation the post-mortem showed invariably an acute broncho-pneumonia not distinguishable from that

described by Dr. Delafield as occurring in man. Throughout the lung substance are seen small nodes of irregular outlines in size resembling tubercles.

Under the microscope these nodules show to consist of mere unorganized collection of cells, often in a state of retrograde change and mixed with mucus and débris; this exudate being limited to the lumina of the bronchials and their pertaining groups of air-vesicles (the acini) which they fill. On section these artificial boundaries give rise to the appearance of nodes. Very often epithelial cells and mucus from the bronchi have been seen intermingled with the purulent contents within the air vesicles; this suggests that the exudate contained in the latter may have been partly aspired from the bronchi (during forced breathing) and was lodged in the air vesicles as foreign material.

These lesions have been mistaken by stupid observers for true tubercles. *Acute* broncho-pneumonia in man appears to be a lesion perfectly analogous to the one described above in dogs. The human disease once becoming chronic its distinction from tuberculous broncho-pneumonia ceases.

DR. DELAFIELD, in closing the debate, said that all the speakers had brought out what was one of the most difficult points concerning broncho-pneumonia, namely, its limitations. Strictly speaking, every pneumonia is a broncho-pneumonia, and the application of the term to a certain group of cases is of course arbitrary. He believed, however, that the name is most properly employed to designate the group of cases which he had described.

In anthracosis there is a chronic bronchitis and also a chronic pneumonia, but yet the lesion is not, properly speaking, a broncho-pneumonia.

He did not believe that the inflammation travelled directly from the bronchi to the air vesicles into which they entered, but that the appearances which simulated this were due to atelectasis.

He thought that the term catarrhal pneumonia was a very bad one, and that the air vesicles were structures entirely different from mucous membranes.

He did not believe that broncho-pneumonia was a form of phthisis or lead to phthisis, but that phthisis had its own special anatomy from the very beginning.

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, November 6, 1884.

THE PRESIDENT, FORDYCE BARKER, M.D., LL.D., IN THE CHAIR.

REPORT FROM THE SECTION OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

DR. ALEXANDER HUNTER, Chairman, reported that at a very largely attended meeting of this Section, held October 23d, Dr. Joseph E. Winters had read a paper on the subject, 1st. *What are the Indications for Tracheotomy?* 2d. *Is the Operation either Difficult or Dangerous?* In consequence of the interest of the paper and the discussion to which it led, it had been voted to recommend that Dr. Winters should be given the opportunity of presenting the subject before the Academy at large. The Chair then announced that it had been arranged that one of the meetings in December should be devoted to the matter.

THE MORTGAGE ON THE ACADEMY BUILDING.

A communication from the Council was read by the Secretary, in which it was recommended that the President should appoint a committee of six, with power to increase its number to fifteen, for the purpose of raising funds to pay off the mortgage on the Academy's hall. The Chair then said that as the mortgage remaining on the property amounted to but $5000, and as it was highly desirable that the amount at present required to pay the interest on this should be devoted to increasing the working efficiency of the Academy, he trusted that a very earnest effort would be made to wipe out the indebtedness; and in this connection he referred to the generous gift, last spring, of $1000 by Dr. H. P. Farnham, the former treasurer. He announced the members of the committee as follows: Drs. G. M. Smith, C. R. Agnew, C. A. Leale, F. A. Carth, H. T. Hanks, and Everett Herrick.

DR. FRANK H. HAMILTON read a paper on

THE ASIATIC CHOLERA AT SUSPENSION BRIDGE IN 1854, AND ITS LESSONS; WHAT WE KNOW OF CHOLERA,

which he said was written in fulfilment of a promise made thirty years ago to Dr. S. B. Hunt, at that time editor of the *Buffalo Medical Journal*. Having mentioned that there were several epidemics of cholera at Buffalo from 1849 to 1854, he gave an account, taken in part from Dr. Hunt's report in the *Buffalo Medical Journal*, of the remarkably violent and fatal outbreak of the disease at Suspension Bridge, two miles from Niagara Falls, which commenced on July 18th of the latter year. According to Dr. Hunt, there had been no locality, with, perhaps, the exception of Sandusky, Ohio, in which there was such a severe epidemic as here. Many cases ended fatally in six hours, there having been no premonitory diarrhœa, and treatment seemed almost of no avail. The panic was indescribable, and in one instance four dead bodies were disposed of by burning the shanty in which they lay. The main factors in the serious character of the outbreak seemed to be elevated temperature, moisture in the atmosphere, low and alluvial ground, and the fact that the soil had recently been upturned. At the request of Dr. Rogers, the only local physician, the place was visited, necessarily, by Drs. Hunt, Rochester, and Hamilton, and the latter spent July 23d and 24th there. In the upper village only five cases occurred, and the last one of these was the wife of Dr. Rogers. The disease was, of course, carried to a number of places in the vicinity, but as the special conditions favorable to its development were wanting, it failed to spread in any of them. Cases of the disease thus being carried to other and salubrious localities were like brands from a conflagration, which, falling in positions where there was no inflammable material to ignite, did no harm.

Having stated that the inferences and lessons to be derived from this visitation of Asiatic cholera at Suspension Bridge were by no means new, Dr. Hamilton proceeded to inquire what the present state of our knowledge was in regard to this disease. In the first place, we had no positive knowledge of the existence of a specific cholera germ. That there was such a germ seemed highly probable, but its existence had not as yet been proven. He, secondly, gave a *résumé* of the microscopic investigations in regard to the disease,

claiming that a cholera microbe had been discovered by an Italian physician as long ago as 1834. Having described the researches of Koch, he stated that H. Van Dyke Carter, of Bombay, had proved not only that the comma-bacillus was not infrequently wanting in cases of cholera, but that this microbe was occasionally found in diarrhœal diseases other than cholera. He spoke of Finkler and Prior having claimed to find the comma-bacillus in cholera nostras, and also of Mr. T. R. Lewis, one of the professors of pathology in the British Army Medical School, finding it in the mouth and fauces of healthy individuals. Referring to the experiments of Rietsch and Nicati, who claimed to have inoculated dogs, guinea-pigs, and other animals by injecting a part of a pure culture of comma-bacilli into the duodenum, after ligation of the ductus choledochus, he said that he thought their conclusions should be received with hesitation, since, so far as he was aware, none of these animals had ever in a single instance been known to contract cholera through natural sources. Dogs and cats were frequently exposed to the contagion, and the former had even been known to eat the excrement of cholera patients, yet without receiving infection. It seemed to him probable that the empirical procedure adopted by the Swiss experimentors referred to, excited an irritation in the intestinal tract which gave rise to symptoms resembling those of cholera. Having mentioned that the Egyptian Cholera Commission, consisting of Strauss, Nocard, and Roux, had failed in their efforts to inoculate animals with cholera, he stated that another French commission, which failing to do this with comma-bacillus, had succeeded when they injected the blood of cholera patients. On the whole, therefore, it seemed to him that Koch's claims for the comma-bacilus had not as yet been substantiated.

Third. Even if it were established that this microbe was always found in cases of cholera, and was never found except in this disease, the relation of cause and effect would not be proven.

Fourth. If, as seemed to be the fact, there were several microbes found in the intestines and dejecta of cholera patients, we did not know which one of these might be the active causative agent.

Fifth. We did not know whether the cholera infection was conveyed by such microbes or by the fluid in which they were found. In this connection Dr. Hamilton said that, while he had no desire whatever to underrate the value of the microscopical investigation of disease, and while he honored those who devoted themselves to such studies, especially in this country, where there was no remuneration for this kind of scientific work, it was certainly a fact that, so far as cholera was concerned, not a single advance in the way of prevention or treatment was attributable to this source. Koch had as yet added nothing to our practical knowledge; but experience had taught us much. It was not positively determined that the infectious material of cholera might not be in the blood or the breath of the individual affected with it.

Sixth. It was known that infection was carried in articles of clothing, in water, etc.

Seventh. It was also carried for considerable distances by the air. He did not think, however, that this was the case beyond a mile or two.

Eighth. The theory of Koch, that the infection entered the system through the alimentary tract alone, was not proven.

Ninth. There was good reason for supposing that it also entered by means of the respiratory organs, and was diffused through the circulatory system.

Tenth. Whatever the germ of cholera was, it was necessary that it should have a suitable soil and conditions for its development.

Eleventh. Among the conditions favorable for its development were bad air, the emotion of fear, etc., with the concurrence of a high temperature and a moist condition of the atmosphere. Low ground and an alluvial soil, with a substratum of clay, were especially favorable, and the upturning of the earth greatly increased the efficiency of these conditions. The effect of the character of the soil was shown in a certain district of Buffalo, bordering on the lake, which, though low and filled with an Irish population residing in shanties, had a sandy soil, and so was almost exempt from cholera when the disease was epidemic in the city.

Mr. Farr had found that the disease was most fatal in London in the low districts along the Thames, and similar facts had been noted of other diseases. In 1849 very severe epidemics of cholera prevailed in Toledo and Sandusky, which are situated on low and richly alluvial plains, and in the latter place no less than seventeen physicians fell victims to the disease. On Saturday, the 4th of July, 1852, when cholera was present in the city of Buffalo in a mild form, the digging of a drain was commenced through Ellicott Street, on which were located many of the finest residences in the place. Although this street had always been exempt from cholera during previous visitations of the disease, a case occurred on Monday, the 6th, and within the next three days there were no less than nineteen cases of the disease in the street, quite a number of which proved fatal. During Monday and Tuesday the digging was continued, but on Wednesday, the 8th, the ditch was filled in by order of the mayor; after which no more cholera occurred in the street.

Twelfth. No specific for the treatment of cholera had as yet been discovered, and it was altogether probable that there never would be. By means of clinical experience, however, more had been learned in regard to the successful treatment of the disease than from any other infectious epidemic. It had been found impossible to avert such diseases as yellow fever and typhus fever, but this could be accomplished in the case of cholera if taken in time.

Aside from the removal of the patient from circumstances predisposing to the disease, opium and absolute rest were the great means for the arrest of cholera. The opium, he thought, it was best to administer in solid form and in doses of from one-half to one grain every three or four hours until the diarrhœa was controlled or there were signs of narcosis. The production of deep narcosis was very undesirable. If the bowels contained much irritating matter, it was best to commence the treatment with a brisk purgative. For checking the bowels, morphia, as a rule, was not so good as opium, on account of its greater tendency to produce nausea. The patient, under no circumstances, was to be allowed to rise from the recumbent posture. If an explanation were sought for the action of the opium in accordance with the germ-theory of the dis-

ease, it would probably be the following: The period of activity of the cholera germ had been found to be very brief, and the utility of the opium appeared to depend on its power of retaining the secretions in a normal condition until this period had passed.

Among the inferences to be drawn from the epidemic at Suspension Bridge were the following:

First. The cholera germ was conveyed to the settlement by some immigrants who were temporarily detained near the laborers who were engaged in the construction of the bridge. The first case occurred among the emigrants, although until they reached this locality, which was favorable to the development of the disease, there had been, so far as known, no case of cholera among them.

Second. The emanations from a large amount of freshly upturned soil, abounding in vegetable matter, rendered the spread of the disease easy.

Third. The elevated temperature and moisture of atmosphere prevailing at the time were also highly favorable to this.

Fourth. While the disease was disseminated to a number of other places in the vicinity, it did not spread in them because there was not the same favorable conditions as at Suspension Bridge.

In case cholera should reappear in the city of New York, Dr. Hamilton believed that a fatal epidemic, such as had recently occurred in Toulon, Marseilles, and Naples, would not take place, because here the climate was more favorable, the sewerage was better, the ground was higher, there was a smaller proportion of the poorer and filthiest class, and the sanitary regulations were better than in those cities.

Having referred to the intelligent and energetic action of the Metropolitan Board of Health on the occasions when cholera had previously visited the city of New York, he spoke particularly of the rapid and fatal epidemic of the disease at the workhouse on Blackwell's Island, in August, 1866. Dr. Hamilton was placed in charge, and the active sanitary measures adopted resulted in the prompt suppression of the outbreak. Dr. L. M. Yale, who, with thirteen other house surgeons, was engaged in the work, made, at the request of the Commissioners of Charities and Correction, a very elaborate and able report of the epidemic.

DR. YALE, being called upon by the Chair to open the discussion, mentioned some of the noteworthy points in regard to the epidemic on Blackwell's Island referred to in the paper. In the first place, he said, it was preceded by a period of great heat in July, and there had been an unusually large number of diarrhœal cases on the Island during the summer. In June there were twenty or twenty-five cases of severe cholera morbus, though none of them proved fatal. The regular water-supply was cut off for a time, and for a considerable period the bread furnished to the workhouse inmates was sour. The first few cases of cholera occurred at Charity Hospital and were sporadic. Four days after the first case appeared at the workhouse, the epidemic commenced, and sixteen cases occurred the first night, August 1st. On August 2d there were thirty-two cases, of which twenty-three proved fatal. Having described the cells in the male and female departments, and the bad sanitary conditions which prevailed, he mentioned the measures adopted for checking the further spread of the disease. In every instance in which a case of cholera could be taken in hand while the initial diarrhœa continued, the patient's life was saved, but i was often exceedingly difficult to secure the patients at this stage of the attack, as most of the inmates considered it equivalent to a sentence of death to be sent to the cholera hospital. The epidemic was controlled with wonderful rapidity. While on the 2d of August the mortality amounted to five and a half per cent., and on the 3d to five and three-fifths per cent. of the total population, within five days it was reduced to less than one per cent. At the almshouse one curious fact was noticed. Of two pavilions of almost identical character, which stood side by side (within thirty feet of each other, although separated by a wall, one of which was occupied by old men, and the other by epileptic and paralytic women), in one twenty-seven cases of cholera occurred, and in the other not a single one. Although its sanitary condition was worse than any other on the Island, the penitentiary building almost entirely escaped the cholera, there being only seventeen cases among its inmates. This was probably due to the fact that the discipline and police regulations were much more severe than in the workhouse and almshouse. The inference from this outbreak seemed to be that if, with the enforcement of strict sanitary measures, cases of cholera could be treated in the early stage of diarrhœa, every epidemic of this disease could be promptly controlled.

DR. FRANCIS A. DELAFIELD remarked that he supposed that all would be willing to acknowledge that cholera belonged to the class of infectious diseases, diseases which were believed to be due to the agency of some specific poison. No matter to what bad hygienic influences (which might give rise to a great many other troubles) an individual might be subjected, he would be in no danger of contracting cholera unless the specific poison of that disease were present. Whether this specific cholera germ was capable of originating *de novo* had often been discussed; but experience seemed to demonstrate the fact that outside of a certain district in India, at all events, such a thing was highly improbable. What, then, was this cholera germ? The latest theory in regard to it was in accordance with the prevalent opinion of the times, and was to the effect that the disease was due to the presence of certain minute organisms. This was the fashion of the day in the scientific world. Such fashions were sometimes good and sometimes bad; but whether they were of the one character or the other, it often took a long time to obliterate them. Under the present fashion of thus explaining the development of all infectious diseases, the causation of cholera was referred to a particular micro-organism, and in his paper Dr. Hamilton had stated very fairly the evidence for and against this hypothesis in the cause of this disease. He had, however, not stated that out of quite a number of experimenters who had investigated the subject there might in reality be only one or two whose testimony could be accepted as worthy of credence. The technique of such investigations was exceedingly laborious and complicated, and hence it was a matter of very great importance whether in any given instance the observer was competent. For his own part, he believed that there were extremely few individuals who were sufficiently expert

in this technique to be capable of making trustworthy observations.

Dr. Hamilton had referred to certain circumstances of soil, atmosphere, temperature, and hygienic conditions as favorable to the development of cholera. They were, in general, such circumstances as were favorable to diarrhœa, and, therefore, whatever conditions of the kind predisposed to diarrhœa also predisposed, he believed, to this disease. Hence, whenever the cholera was introduced into a locality where the condition of affairs predisposed to diarrhœal trouble, there was likely to be a bad epidemic. If, on the other hand, no causes predisposing to diarrhœa were present, the introduction of the cholera germ would be followed by no serious consequences. This simple fact seemed to him to indicate very clearly the rational means for the prevention of cholera. Quarantine, if there was to be any commercial intercourse between nations at all, was practically useless. While, therefore, the importation of cholera germs could not be prevented, it certainly was possible to prevent the development and spread of the disease by removing, as far as was possible, all causes predisposing to diarrhœa.

DR. ALFRED S. LOOMIS said that his personal experience with cholera was very limited, as the only cases of it which had ever come under his observation were a few in the years 1866 and 1867. These had not afforded him sufficient data to found any conclusions upon, and he, therefore, simply occupied the position of a student of the literature of the subject. The paper just read was by one who had had an extensive experience with cholera, and he did not hesitate to say that Dr. Hamilton had called attention to some facts of which he had previously been ignorant.

The first thing to determine was, In what class of diseases do the facts and written history of cholera place it? There were three classes of infectious diseases, viz.: (1) Those in which the morbific agent was developed only in the blood, and reached its full development within the body. Such diseases are directly transmitted from the infected to the non-infected individual, and were strictly contagious. Of this nature were typhus fever and the exanthemata.

(2) Those in which the morbific agent was developed outside the body in decomposing organic matter, and was introduced into the system through the agency of water, the atmosphere, etc.

(3) Those in which the specific poison was developed in a living organism, but was in a passive state at the time of leaving such organism. It was necessary that the agent should undergo certain changes, in connection with decomposing organic matter, after it had left the body, before it was capable of giving rise to infection.

In this last class, it seemed to him, cholera should be placed, and the diseases which it resembled more closely than any others were typhoid and yellow fevers. It was now almost conclusively demonstrated that the changes referred to were requisite before either of these affections would become developed.

Dr. Loomis then took up the following points in regard to the characteristics of cholera:

First. Is cholera indigenous in any part of the world? There were undoubtedly localities where yellow fever, and even typhoid fever, were indigenous, and it had now come to be universally acknowledged that Bengal was the centre of all cholera epidemics. After spreading through India, as the first step, it often continued to extend over the entire globe, and its progress, although generally slow in the beginning, was sometimes afterwards very rapid. In the years 1832, 1848, 1849, 1852, 1853, 1854, 1866, and 1867 it had visited the United States.

Second. Is the disease ever of spontaneous origin? The facts showed that almost invariably it could be traced to some previous case, although a considerable time might have elapsed since the occurrence of the latter. If it was not of spontaneous origin, there was no satisfactory evidence to show that its development always proceeded directly from an individual or individuals infected with the disease.

Third. What are the characteristics of its spread from its point of origin? It always spread irregularly, and was especially liable to appear wherever diarrhœa was prevalent. The statement had been made that without moisture in the soil there could be no cholera. In Marseilles ninety persons had died in a single house, in which there was a damp court-yard with a foul privy. At all events, something besides filth was required for the development of the disease. It was undoubtedly one of the favoring causes, but in itself it was innocuous. So of over-crowding; but a cleanly over-crowding, such as was often met with in the hospitals, was not a specially favorable condition for it. Impure water was frequently a means of its spreading, and at Arles no less than forty cases occurred along an uncovered drain 400 feet in length. Not only the condition of the drinking-water, but that of the sewerage, had much to do with the spread and fatality of cholera. High temperature, as a rule, was also favorable to it; yet striking instances were on record when bad epidemics occurred at a time when there was a very low temperature.

Fourth. Is there a specific cholera germ, and, if so, how does it gain entrance to the body, and where reside? Dr. Loomis thought that there was such a germ, and that in a large percentage of cases it entered the system through the intestinal tract. It had by no means, however, been proved that this was the sole location in which it could be found. In all epidemics of cholera there were certain nervous phenomena which indicated that the blood was the seat of trouble. All that we could say was that the cholera poison undoubtedly entered the body through the mucous membrane. While this, no doubt, generally took place in the intestinal tract, it seemed true that it sometimes also occurred in the respiratory tract. When the poison had thus entered the system, it appeared to give rise to changes in the blood, and in the cell-elements of various organs. One remarkable feature about the disease was the immunity from the danger of contracting it, which nurses and others brought into close contact with cholera patients enjoyed. Pettenkofer was the first to regard human excrement as the usual means by which infection was spread. As to the agency by which the infection entered the body, nearly all recent authorities were agreed that drinking-water was the cause of nine-tenths of all cases of cholera, and even if the drinking-water was not contaminated, water in other shapes was still the great source of infection, the latter being conveyed through drains, sewers, etc. The

reason that Rome escaped while Naples was visited with a fearful epidemic of cholera was, he had no doubt, because the former city had just completed an improved system of both drainage and sewerage. The atmosphere was probably responsible in a small degree for the spread of cholera, since the history of some epidemics seemed to show that the winds conveyed the infection. The Bengal Cholera Hospital statistics afforded considerable proof that not only through the agency of the mucous membrane of the mouth and the respiratory tract were cholera germs admitted to the body, but also by means of the rectum and large intestines. Striking cases were recorded which pointed clearly to the danger of receiving the poison in this way in privies.

Fifth. Can cholera be directly caused, or, in other words, is it contagious? The poison undoubtedly adhered to clothing, to various objects, and to places, and, when the proper combination of circumstances occurred, became active. An instance had been reported in the *Lancet*, in which a French monk who had died of cholera had been buried in his infected clothing near a well, in consequence of which an epidemic of the disease occurred in the neighborhood in three days afterwards. It was a curious fact that one room of a house might be a hotbed of cholera, while the occupants of other apartments entirely escaped infection. Foul water was rightly regarded as almost always a source of great danger, yet the foulest water in India was at a post where the health of the garrison was so good that the government would not allow any change to be made. Though the water was bad in other respects, cholera germs had never been deposited in it. The facts went to show that decomposing excrement, and clothing soiled with this, were among the most common agencies by which cholera was spread.

Having mentioned that in 1849 Dr. Budd published diagrams of cholera fungus with a bacillus resembling that of Koch, Dr. Loomis said that all previous researches in regard to the specific germ of cholera were insignificant compared with those of the great German investigator. But in order that he should be willing to accept the conclusions of Koch, it would be necessary to have proved, beyond any question whatever, that the microbe described by him was always present in cases of cholera, that it was never found in any other disease than cholera, that it was never found in the healthy body, and, finally, that inoculation with it gave rise to cholera. Up to the present time he did not think that these points had been satisfactorily demonstrated.

Dr. Loomis then proceeded to inquire if cholera was a preventable disease. If the conditions favorable to its growth were carefully guarded against, and if a sufficiently strict quarantine was maintained, he believed that it could certainly be prevented. In regard to the treatment of the disease, Dr. Hamilton had said all that was required.

DR. JOHN C. PETERS exhibited a couple of plates, one of which represented the peculiar delta in India which was the special home of cholera, and the other the roads and railways leading from it, along which cholera usually spread to other parts of India, and thence the world at large. In referring to the epidemic in the United States in 1854, he said that the disease entered America through three cities, Quebec, New Orleans, and New York. As regards the efficiency of a strict quarantine in preventing the introduction of cholera, there are two striking instances which showed the evil result of abandoning this. When Denmark, which had been frequently exposed to the danger of cholera infection from other nations, but had always escaped through the strict quarantine she maintained, for the first time removed this, an epidemic occurred in the country, in which there were 7000 cases, with 4000 deaths. The quarantine was then reëstablished, and there had been no more cholera there up to the present time. The same thing was true in regard to Greece. At the time of the Crimean war cholera was introduced by the French soldiers, but there had been no subsequent epidemic there. Dr. Peters then quoted some statistics of the United States army during the late war. It contained, on an average, 800,000 men a year, and during the years from 1861 to 1865, inclusive, there were a vast number of cases of malarial disease and a vast number of cases of diarrhœal disease among the soldiers; yet not a single case of cholera occurred. The specific poison of Asiatic cholera was lacking; but the very year after the war, 1866, this disease spread almost all over the country.

On motion of Dr. Alfred C. Post it was voted that the discussion of the subject should be continued at a subsequent meeting of the Academy.

CORRESPONDENCE.

RAPID DILATATION OF THE CERVIX FOR STERILITY AND DYSMENORRHŒA.

To the Editor of THE MEDICAL NEWS.

SIR: I read, with great interest, in THE NEWS of October 19th, the remarks of Prof. Goodell before the Obstetrical Society of Philadelphia, on rapid dilatation of the uterine canal, and heartily agree with him that it is a perfectly safe and a very satisfactory procedure. While my experience has not been quite so extensive as his, it has been more satisfactory. Within the past year and a half I have operated between thirty and forty times, and always with entire relief of the dysmenorrhœa unless dependent upon some previous ovarian trouble; but have not in every case overcome the sterility. In no case have I been obliged to repeat the operation. Some have conceived within the first three months after the operation. My mode of dilation is similar to that of Prof. Goodell, but the opium suppository is omitted, as the operation, in my hands, has never been followed by any unfavorable symptoms.

Prof. Goodell's failures have probably been due to contraction after the operation. To avoid this, I use a glass stem pessary about the size of a No. 20 or 21 steel sound (French). This is two inches long and only slightly curved, terminating in a button-shaped extremity, which prevents it from entering the canal too far. It is introduced after the dilatation is complete, being kept in position by a tampon of cotton in the vagina. During the first twenty-four or forty-eight hours it will be found that the stem is grasped firmly by the cervix, but after this it becomes relaxed, and the stem is apt to slip out.

The patient is kept in bed in a recumbent position for a week, the stem being removed every day or two,

cleansed and replaced. The tampon which holds the stem in position is saturated with glycerine, which, by depleting the tissues, relieves the irritation produced by the operation.

If there is much rigidity of the os with congestion, I use one or two applications of the glycerine tampon two or three days apart before the operation, which relaxes the cervix, renders the dilatation easier, and lessens the irritation produced by it. The patient is directed to remove the tampon after twenty-four hours, by pulling on the string which is attached to it, and to use vaginal injections of hot water freely.

A. H. GOELET, M.D.

243 WEST 54TH ST., NEW YORK.

COCAINE AS A LOCAL ANÆSTHETIC TO THE EYE.

To the Editor of THE MEDICAL NEWS.

SIR: I notice that several observers report in your last issue their experience in the use of muriate of cocaine. I think that the best results may be obtained from its use if the interval between the first instillation, in eye cases, and the first step in the purposed operation is not so long. So far, in my experience with its use in ophthalmic surgery, the best method of application is as follows: Wash the conjunctival surface of the eye to be operated upon by flushing it with a solution of boric acid, one to twenty-six. Then drop two or three drops of the four per cent. solution of the cocaine upon the scleral conjunctiva beneath the upper eyelid, the eye in the meantime being turned downwards. In two or three minutes instil two or three more drops. Repeat the instillation four or five times in the course of fifteen minutes, and make the first cut in the proposed operation immediately after the last instillation, if conjunctival sensitiveness is gone. I have seen the sensitiveness of the conjunctiva fully restored in less than fifteen minutes from the first instillation, when complete analgesia had been present. So far as my present experience goes, I would advise that the agent should be employed "blow upon blow" with shorter intervals than some of the observers quoted in your columns would seem to approve of.

C. R. AGNEW, M.D.

NEW YORK, November 8, 1884.

NEWS ITEMS.

MONTREAL.

(*From our Special Correspondent.*)

THE LUNATIC ASYLUMS OF THE PROVINCE OF QUEBEC.—Public opinion here has lately been much excited by the publication, in the October number of the *Canada Medical and Surgical Journal*, of a report by DR. HACK TUKE, the well-known English alienist, on the lunatic asylums of the Province of Quebec. Dr. Tuke contrasts the condition of affairs existing in this province, in regard to the treatment of the insane, with that of Ontario. For the latter he has nothing but praise; for the former little else but censure. The system of farming out the lunatics, at so much a head for a series of years, which is in vogue in Quebec, he unhesitatingly and strongly condemns. He visited the asylum at Beaufort, managed by private individuals, and that of St. Jean de Dieu, at Longue Pointe, near Montreal, controlled and owned by a society of nuns. He found both asylums overcrowded and the buildings utterly unsuited for the lodgement and treatment of the insane. Dr. Tuke was astonished to find the rigorous and cruel restraint of a century ago still the favorite method of treatment in these institutions. He saw many patients with straight-jackets, mittens, manacles, and anklets, others strapped to chairs—body, hands, and feet—simply as a matter of economy to prevent them tearing their clothes and to lessen the number of attendants. Dr. Tuke remarks that he rarely saw anything more depressing than the condition of the patients in the refractory wards, which are situated in the highest story, under the roof. Here he found the wards much overcrowded and without sufficient ventilation. Many of the patients were confined in dark cells, some quite naked, others clothed, but having nothing to lie or sit upon but the bare floor or perhaps a loose paillasse. They were most of them manacled. The narrow corridor which served for day-room exercise and recreation ground was also crowded with patients restrained by handcuffs, manacles, or strapped immovably to restraint-chairs. He calls this part of the asylum of St. Jean de Dieu the "chamber of horrors"—a veritable pandemonium and human menagerie. Both asylums Dr. Tuke found clean and orderly, especially in the lower stories, but he was surprised to find that there was no resident medical officer in either institution.

The Longue Pointe Asylum is visited twice a week by the government visiting physician. This gentleman, who is a well-known alienist, has power only to admit and discharge patients, but has no voice in their management, treatment, or hygienic surroundings. The nuns themselves decide which patients are to be put under restraint and which ones are to be left free. True, they employ a medical man, who is the local village practitioner and has no special knowledge of the treatment of the insane. He was appointed simply because he happened to live in the neighborhood and to comply with the law which requires them to employ a *competent* physician. Considering the absence of treatment, and the effects of rigorous restraint, it is not to be wondered at that the number of patients discharged cured is small and the death-rate is large.

On the publication of Dr. Tuke's report, all the English daily papers copied from it largely (some printed it in full), and they all commented severely on the deplorable condition of affairs which the report revealed. The French press were silent for some time, when a couple of the more liberal papers printed portions of the report and mildly asked for some sort of government investigation. The majority of the French papers, however, without even publishing anything but the most garbled extracts from the report, denounced Dr. Tuke as a vile calumniator, a Methodist and fanatic, a Protestant conspirator and a maniac, for daring to find fault with any institution managed by sisters of charity. They asserted that *Les Sœurs c' est bien l'incarnation de la providence de Dieu*, which was sufficient answer, in their opinion, to confute all the charges made in Dr. Tuke's report. Some of the comments are very amusing. One very ultramontane paper said that, like Empedocles, who jumped into the crater of Ætna to gain immortality, so Dr. Tuke, finding no other means of attaining fame, had made up a slanderous, malevolent,

and untrue report of the condition of one of the Church's noblest and best-managed charities—one which had been greatly praised for its efficiency by authorities from all parts of the world.

The state of affairs which Dr. Tuke describes as existing in the asylum of St. Jean de Dieu (Long Point) was well known to many of the medical men here who had visited the institution. The *Canada Medical and Surgical Journal*, several years ago, in a series of able editorials, exposed fully the abuses which the contract system entailed, but no notice was taken of this exposure by the secular press; it remained for a man of Dr. Tuke's reputation to arouse public opinion sufficiently to take some interest in the condition of the insane in this province. I may say, in this connection, that the government visiting physician to the St. Jean de Dieu asylum has frequently sent in to the government elaborate reports, condemning the system, which have never been published; and it is stated that one of the government inspectors has frequently notified the government of the abuses existing in these asylums, but that his reports were suppressed, the government fearing to incur the enmity of a church which is so politically powerful by disturbing the peace of an institution managed and owned by one of its religious orders.

It is said that when Parliament meets the Liberal opposition intend demanding an inquiry into the state of the lunatic asylums of this province. The result of this inquiry is very likely to depend entirely on the political and religious complexion of the commission appointed. The Montreal Medico-Chirurgical Society are shortly to hold a meeting to consider the abuses which exist in the lunatic asylums and to suggest a remedy.

CHOLERA IN NAPLES.—The U. S. Consul at Naples, under date of October 13th, reports an unexpected increase of the cholera epidemic at that place, particularly among the miserable inhabitants of Mercato, Pendino, and Parto. On the evening of Thursday, October 8th, the official bulletin, for the twenty-four hours ending at 4 P. M., reported but 18 cases and 9 deaths, and the improvement was a matter of great rejoicing among the people, the fact being celebrated by some in an unwise manner. Thursdays, during this month, have been observed by the poorer classes as pleasure days—October in Naples usually being beautiful weather—and on these days the poor and working classes spend their days and evenings in the country, eating and drinking and feasting. At this season the vintage is at its height, and the large supplies of new wine are eagerly consumed by the people. In this wine the process of fermentation has not been complete, and the result of copious drinking the same are the usual choleraic symptoms.

In accordance with the custom, half of Naples (those from the most unhealthy sections of the city) were celebrating on the 8th of October (Thursday), eating and drinking as they had not done for some time past; singing funeral dirges of the cholera, and indulging without stint in new wine. The result, in twenty-four hours, was that new cases rose to 122 and deaths to 45. It was then that the authorities ordered the "bettole" (taverns) to be closed on Thursdays in this month, and also on Sundays and Mondays. On the following Sunday the new cases fell to 97 and deaths to 48; on October 13th, there were 90 cases and 28 deaths.

The decrease in number of cases and deaths last week brought confidence and relief, and the trains are again running between Naples and Castellemare; fumigations at Nice have also been abandoned.

The total number of deaths from cholera in Naples, from the beginning of the epidemic to midnight on the 10th of October, is given at 1327, out of some 6042 cases, in a population of 450,599.

There is a revival of trade between Naples and the United States, the shipments through the Consulate from September 1st to date having been $160,401.96 in value.

THE COMMITTEE ON THE ORGANIZATION OF THE INTERNATIONAL MEDICAL CONGRESS TO BE HELD IN WASHINGTON IN 1887.—At a meeting of the Committee charged with the organization of the Washington Congress, held in New York last month, the Committee added to its number, and it is now constituted as follows:

Drs. George C. Shattuck, James R. Chadwick, of Boston; Austin Flint, Sr., L. A. Sayre, A. Jacobi, of New York; T. F. Rochester, of Buffalo; I. Minis Hays, S. Weir Mitchell, J. M. Da Costa, of Philadelphia; Christopher Johnson, W. C. Van Bibber, of Baltimore; S. C. Busey, of Washington; R. A. Kinloch, of Charleston; H. F. Campbell, of Augusta; J. G. Thomas, of Savannah; J. G. Richardson, of New Orleans; W. W. Dawson, of Cincinnati; D. W. Yandell, of Louisville; N. S. Davis, Hosmer A. Johnson, of Chicago; George J. Englemann, of St. Louis; L. C. Lane, of San Francisco; John S. Billings, U. S. Army; J. M. Browne, U. S. Navy; R. P. Howard, of Montreal, Canada. We are informed that the full Committee will meet in Washington at the end of this month.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 4 TO NOVEMBER 10, 1884.

SPENCER, W. C., *Major and Surgeon.*—Ordered to Fort Trumbull, Connecticut, for duty as Post Surgeon, relieving Assistant Surgeon Wm. J. Wilson, U. S. A., who will report at Department Headquarters, and await further orders.—*S. O. 227, Department of the East*, November 5, 1884.

WILSON, WM. J., *Captain and Assistant Surgeon.*—Granted leave of absence for four months, with permission to go beyond sea, to take effect when his services can be spared by his department commander.—*S. O. 262, A. G. O.*, November 7, 1884.

COHISIER, W. H., *Captain and Assistant Surgeon.*—Ordered to Fort Grant, Arizona Territory, for duty as Post Surgeon.—*S. O 102, Department of Arizona*, October 30, 1884.

HOPKINS, WM. E., *First Lieutenant and Assistant Surgeon.*—Ordered to Fort Lowell, Arizona Territory, for duty as Post Surgeon.—*S. O. 102, Department of Arizona*, October 30, 1884.

EGAN, PETER R, *First Lieutenant and Assistant Surgeon.*—Relieved from duty at Fort Lowell, Arizona Territory, and ordered to Fort Bowie, Arizona Territory, for duty as Post Surgeon.—*S. O. 102. Department of Arizona*, October 30, 1884.

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